MOTHER TONGUE

JOURNAL OF THE ASSOCIATION FOR THE STUDY OF LANGUAGE IN PREHISTORY

Issue XX · 2015

In Memory of Harold Crane Fleming (1926-2015)

CONTENTS

1 **Tributes and Memorials to Hal Fleming**

7 Ode to Our "Randy" Ancestors: An essay in honor of Hal Fleming
Stephen L. Zegura

19 Archaeologia Afroasiatica I: Disintegration of the parental language
Gábor Takács

35 The limited evidence of shared innovations in East Cushitic | *Paul Black*

45 Cushitic and Omotic personal pronouns in Afroasiatic perspective
Václav Blažek

73 Was there a now-vanished branch of Nilo-Saharan on the Dogon Plateau?
Roger Blench

91 Etymological Notes I: Indo-European and Nostratic | *Allan R. Bomhard*

101 Siculan | *Peggy Duly & Sergej Jatsemirskij*

113 Notes on Anatolian languages | *Vitaly Shevoroshkin*

149 The Central Asian substrate in Old Iranian | *E.J. Michael Witzel*

179 What is hidden under the "Uralic-Yukaghir" label? | *Ilia Peiros*

207 Revisiting the question of Austronesian implosives | *Peter Norquest*

237 Sibling Terms in Kiowa-Tanoan and Uto-Aztecan | *Jane H. Hill*

249 A Universal Proto-Interjection System in Modern-Day Humans
Pierre J. Bancel, John D. Bengtson, Alain Matthey de l'Etang

263 The Bashkir gloss *tänäy* 'baby' and its interphyletic correspondences in other languages | *Sh. Nafikov, G. Yagafarova, G. Karimova, M. Valieva*

271 **ASLIP News & Notices**

MOTHER TONGUE **Issue XX · 2015**

Journal of the Association for the Study of Language in Prehistory

OFFICERS OF ASLIP

President: Michael Witzel witzel@fas.harvard.edu
Department of Sanskrit Tel. 617-495-3295
& Indian Studies
Harvard University
1 Bow Street
Cambridge, MA 02138
U.S.A.
http://www.people.fas.harvard.edu/~witzel/mwpage.htm

Vice-President: John D. Bengtson palaeojdb@hotmail.com
Savage, MN U.S.A.
http://jdbengt.net/ Tel. 612-839-3649

Secretary-Treasurer: Michael T. Lewis

Information Officer: Jonathan Sherman Morris jonathanmorris1964@gmail.com
São Paulo, Brazil Tel: 5511-31512667

MOTHER TONGUE **Editor in Chief:** John D. Bengtson (see above)
Administrative Editor: Nicholas Davidson

Technical Advisors: Brita M. Bengtson http://www.bmgb.net/index2.html
John Robert Gardner atman@vedavid.org

BOARD OF DIRECTORS

Václav Blažek (Masaryk University)
Ronald Christensen (Lincoln, Mass.)
Murray Denofsky (Somerville, Mass.)
John Robert Gardner (Gloucester, Mass.)
Michael Puett (Harvard University)
Stephen L. Zegura (University of Arizona)
Allan R. Bomhard (Charleston, S.C.)
Nicholas Davidson (Center for Avestic Research)
Frederick Gamst (Los Osos, Calif.)
Phillip Lieberman (Brown University)
Jan Vansina (Madison, Wis.)

COUNCIL OF FELLOWS

Raimo Anttila (University of California, L.A.)
Luigi Luca Cavalli-Sforza (Stanford University)
Vyacheslav V. Ivanov (Russ. Acad. Science)
Colin Renfrew (Cambridge University)
Vitaly Shevoroshkin (University of Michigan)
Chris Stringer (Natural History Museum, London)
Ofer Bar-Yosef (Peabody Museum, Harvard)
Vladimir A. Dybo (Russian Academy of Science)
Sydney M. Lamb (Rice University)
Merritt Ruhlen (Stanford University)
George Starostin (Russian State Univ. of Humanities)

ISSN 1087-0326 **ASLIP** Homepage: http://aslip.org

Mother Tongue XX

Twentieth Anniversary Issue

Dedicated to the Memory of Harold Crane ("Hal") Fleming

Twenty years ago, in December 1995, the Association for the Study of Language in Prehistory rolled out the first issue of its journal, *Mother Tongue*. The volume consisted of 237 pages, including articles, book reviews, and two editorials (by Hal Fleming). The largest space (nearly 200 pages) was occupied by a discussion of "Basque and Dene-Caucasian" by Larry Trask, with responses by John Bengtson and eleven other discussants.

The current issue is thus the twentieth anniversary issue, and, coincidentally, the first produced after the death of Hal Fleming, the founding father of ASLIP.

As a "Four Fields" anthropologist, Hal Fleming was familiar with the various approaches or disciplines germane to understanding human prehistory. Therefore we lead off this issue with Steven L. Zegura's "Ode to Our 'Randy' Ancestors," a summary of recent discoveries in **archaeology** and **"biogenetics"** (Hal's term) that continue to add to the evidence that "we [modern humans] are all hybrids."

The next four articles deal with one of Hal's major fields, **African languages**. Gábor Takács offers an overview of Afro-Asiatic prehistory, concluding that "the southern 'block' [Omotic, Chadic, Cushitic] was presumably rather a much less coherent and less closely related proto-dialectal community than the northern one [Egyptian, Semitic, Berber]." Paul Black, in his analysis of East Cushitic, stresses the need to use all evidence available for subgrouping, including lexicostatistics, since what may seem to be shared innovations may in fact (as he shows) be the results of independent convergent developments. In his contribution Václav Blažek carefully analyzes the Afroasiatic pronouns, with changes from an original system characterized by set A vs. set B, to the various systems in the six major branches of the family. Roger Blench finds evidence for an extinct branch of Nilo-Saharan on the Dogon Plateau; substratal traces remain in the Dogon languages (generally considered to be related to Niger-Congo) and Bangime ("which appears to be an isolate").[1]

Hal Fleming's interests in anthropological and genetic linguistics extended worldwide. The next seven articles in *Mother Tongue* XX proceed "out of Africa" into Eurasia, and beyond, with discussions of **Indo-European** and **Nostratic** (by Allan Bomhard, former ASLIP Vice-President); **Siculan**, an extinct Italic language of Sicily (Duly & Jatsemirskij); **Anatolian** languages, here primarily Milyan (Vitaly Shevoroshkin); a postulated extinct South Central Asian language (**SCA**), that left traces in Iranian and Indic (Michael Witzel, current ASLIP President); the disputed relationship of **Uralic** and **Yukaghir** (Ilia Peiros); the phonology of **Austronesian** (Peter Norquest, former ASLIP Secretary-Treasurer); and, in North America, kin terms in **Kiowa-Tanoan** and **Uto-Aztecan** (Jane Hill).

Hal Fleming's vision of genetic linguistics also extended deeply into prehistory: "All known human spoken languages [probably] are genetically related to each other as descendants of the first invention[s] — **Ur-Human** or **Proto-Language**."[2] Almost three decades ago Hal also hinted at the existence of a "higher level mega-super-phylum which will include both Mitian[3] and Dene-Caucasic plus some other phyla — probably AA [Afroasiatic], Kartvelian, and Dravidian;"[4] he later made the formal proposal of a **Borean** macro-family,[5] which has since been developed by the Moscow Circle and others.[6] The last two articles in this issue pursue these lines of inquiry: Bancel, Bengtson & Matthey discuss a "universal proto-interjection" (typically _hum, hmm, hm_, etc., in many languages worldwide), arguing that "several of its basic features and the recurrence of its different variants across languages point to a very ancient origin, certainly predating articulate speech, of which it may have been a precursor." Shamil Nafiqov and colleagues at the Ufa Scientific Center (Bashkortostan), propose that resemblances between Bashkir _tänäy_ 'baby, infant',[7] _tänäylä-_ 'to give birth', and numerous similar forms worldwide (e.g. Proto-Hmong-Mien *_tɔn_ 'son'; Nootka _tˀanˀa_ 'child') can most likely be ascribed to "genetic relationships within members of the Boreal superstock with a very large time depth."

---

[1] Blench described Bangime (*Baŋgi-me* language of the *Baŋga-na* people) in *Mother Tongue* XII (2007).

We are thankful to the thirty colleagues who have contributed eulogies and articles to this memorial volume.

---

[2] From _Mother Tongue_ I, page 1; also quoted in the ASLIP mission statement: see http://aslip.org/

[3] Hal's term for Eurasiatic / Nostratic, i.e. language families characterized by first person *_mi_ / second person *_ti_.

[4] H.C. Fleming. 1987. "Towards a Definitive Classification of Human Languages." Review Article of _Guide to the World's Languages_ by Merritt Ruhlen. _Diachronica_ IV: 159-223.

[5] H.C. Fleming. 1991. "A New Taxonomic Hypothesis: Borean or Boralean." _Mother Tongue_ 14, Newsletter of ASLIP. 16pp.

[6] Gell-Mann, Murray, Ilia Peiros, & George Starostin. 2009. "Distant Language Relationship: The Current Perspective." _Journal of Language Relationship / Voprosy jazykovogo rodstva_ 1: 13-30; Haase, Fee-Alexandra. 2011. "'Where Does Speech Come From?' A Historical Linguistic Answer." _Trames_ 3: 277-299. http://www.humnet.unipi.it/slifo/vol9/Haase9.pdf

[7] Dialectal 'younger brother / sister', 'younger brother-in-law'.

Harold Crane Fleming (1926-2015)

Hal Fleming, Founder of the Association for the Study of Language in Prehistory, died on the 29th of April, 2015, at his home in Gloucester, Massachusetts.[8]

Hal was born the 23rd day of December, 1926, in Winsted, Connecticut. After attending elementary and secondary schools in Winsted Hal was drafted into the Navy in early 1945 and trained as a radio operator in the amphibious forces which were meant to invade Japan later on that year. Instead the atomic bomb intervened and saved Hal from what could well have been a violent death or injury. Also fortunate for him was a program called the GI Bill of Rights that paid for four years of college for military veterans.

Hal enrolled in Yale University (Yale College; Jonathon Edwards) and attained the Bachelor of Arts degree in 1951. Hal continued his post-graduate studies at Yale (1953-1963), passed the comprehensive examinations in anthropology (1955) and was admitted to candidacy for the PhD (now = MPhil) the following year. By this time Hal was married, to Barbara Anthony, and had a child, Leslie, so it was necessary to support the family by working 20 hours a week for a land surveyor. This skill also served him later when he served as Chief of Party of a land survey group in Ethiopia (1958-1959).

After field research, supported by the Ford Foundation, in Ethiopia, Kenya, Tanganyika, Uganda, Congo, and Rwanda (1957-1960), Hal was admitted to Graduate School at the University of Pittsburgh, passed comprehensive examinations in anthropology in 1964, and was granted the degree of Doctor of Philosophy in 1965. His dissertation topic for the PhD at Yale and Pittsburgh was "The Age-Grading Cultures of East Africa: An Historical Inquiry." Hal's major doctorate adviser, at Yale and at Pittsburgh, was George Peter Murdock. During the latter part of his graduate studies Hal served as a Graduate Assistant in the Department of Anthropology, University of Pittsburgh and as Ogden Mills Fellow, American Museum of Natural History, New York.

In 1965 Hal began his long career at Boston University, first as Assistant Professor of Anthropology, then as Associate Professor of Anthropology and Research Associate in the African Studies Center, Boston University (1971-1988), and continuing as Research Fellow in the African Studies Center and Emeritus Professor of Anthropology, Boston University (since January 1989). At various times Hal taught the following courses: Anthropology (Introductory, Cultural, and Social), Primitive Religion, Ethnology of India, Ethnology of the Middle East, History of Anthropology, Theory and Method (Anthropology), Peoples and Cultures of Africa, Ethnology of Northeast Africa, Languages of Africa, Historical Linguistics,[9] Description (Field Methods) in Anthropological Linguistics.

Early in his career at Boston University Hal published a paper that outlined an important taxonomic discovery, his proposal that what had up to then been known as the "Western Cushitic" language family was not a part of Cushitic at all, "but rather constitutes a sixth primary branch of Afro-Asiatic, for which he suggested the name Omotic."[10] Solving taxonomic problems with African languages, and worldwide, continued to be a major theme of Hal's work.

---

[8] This brief biography was modified from the one in his Festschrift: *In Hot Pursuit of Language in Prehistory: Essays in the four fields of anthropology in honor of Harold Crane Fleming*. Ed. J.D. Bengtson. Amsterdam: John Benjamins. 2008.

[9] With internal focus on Phylum Linguistics (also called Paleolinguistics or Prehistoric Linguistics).

[10] "The Classification of West Cushitic within Hamito-Semitic." *Eastern African History. Boston University Studies in African History*, ed. by D. McCall, N. Bennett, and J. Butler, III:3-27. 1969. The quote is from Merritt Ruhlen, *Guide to the World's Languages. Vol. 1: Classification.* Stanford University Press, 1987, p. 89.

In August of 1986 Hal had an experience that came to significantly shape his activities for the following two decades. While attending the Ninth International Conference of Ethiopian Studies in Moscow he "accidentally" met the young members of the "Moscow Circle" of historical linguists.[11] Hal was deeply impressed by the "long range linguistic probing ... of scholars in Moscow who were trying to extend genetic taxonomy of human languages beyond the levels achieved in the 1950s and 1960s." Since Hal was the only American in the linguistic section of the Conference he was selected by the Moscow Circle to be their "representative" to western scholars.[12]

Beginning in the fall of 1986 Hal began discharging this duty by circulating letters to a large number (ca. 75) of linguists and anthropologists outside of Russia. The second and third letters were labeled Circulars, and by the fourth issue (November 1987) the newsletter had acquired a more formal appearance, the name *Mother Tongue*,[13] and the *Anči* symbol (the mother figure, with a ceramic jar on her head) that has graced every issue of *Mother Tongue* (Newsletter or Journal) since.

In 1989 what had been the "Long Range Comparison Club" was legally incorporated as the Association for the Study of Language in Prehistory (ASLIP), a non-profit corporation. ASLIP's mission is "to encourage international, interdisciplinary information sharing, discussion, and debate among biogeneticists, paleoanthropologists, archaeologists, and historical linguists on questions relating to the emerging synthesis on language origins and ancestral human spoken languages."[14] Hal served as President of ASLIP (1988-1996), Secretary-Treasurer (1996-98, 2004-08), Vice-President/Treasurer (2004-05), Editor of *Mother Tongue* (1997, 2004-05), and Member of the Board of Directors (1998-2014). Hal faithfully attended ASLIP annual meetings, up until his last one, on the ninth of November 2014.

In the late 1980s Hal's thoughts about the wide linguistic vistas opened by his Muscovite colleagues (deep levels of Nostratic, Sino-Caucasia, and Afroasiatic), along with influences from Morris Swadesh, began to solidify on the idea of a "mega-super-phylum which will include both Mitian [= Greenberg's Eurasiatic] and Dene-Caucasic plus some other phyla — probably AA [Afroasiatic], Kartvelian, and Dravidian" (Fleming 1988: 214). Hal proposed the name "Borean," which has stuck and been used by the current Moscow Circle.[15]

In 1989 and 1990 Hal took another trip to Ethiopia for linguistic field research, primarily "to fill out the parameters of the Omotic group." One of the languages discovered on this trip, Ongota (a.k.a. Birale), turned out to be a taxonomic puzzle. Some experts have considered it Nilo-Saharan (with numerous loans from Afro-Asiatic), some (including Hal) have placed it in Afro-Asiatic at some level, and others have regarded it as a mixed or pidgin language. In 2006 Hal's book on the Ongota language was published; "it features Ongota as a major sub-phylum of Afro-Asiatic and its presence as decisive in arguing for an Ethiopian homeland for that phylum." [16]

---

[11] The Moscow Circle at that time consisted of A.Y. Aikhenvald, A. Belova, V.A. Dybo, E. Khelimsky (Helimski), A.Y. Militarev, S.L. Nikolayev, I. Peiros, V. Porkhomovsky, S.A. Starostin, O. Stolbova, V. Terent'ev, T.L. Vetoshkina, N. Zhvania. As mentors they looked to I.M. Diakonov (Diakonoff), A.B. Dolgopolsky (Haifa), and the late V.M. Illich-Svitych. Another member, V. Shevoroshkin, was already in the U.S. (Ann Arbor) by this time, and Mark Kaiser was an early American associate of the Moscow Circle.

[12] In reconstructing this history much is owed to a letter from Hal Fleming to Edward C. Carter (American Philosophical Society) in March 1987, as well as the circular letters mentioned below.

[13] The title *Mother Tongue* was invented by V. Shevoroshkin.

[14] Further particulars can be found on the ASLIP website: http://aslip.org

[15] (1988) "Towards a Definitive Classification of Human Languages": Review Article of *Guide to the World's Languages* by Merritt Ruhlen. *Diachronica* IV: 159-223; (1991) "A New Taxonomic Hypothesis: Borean or Boralean." *Mother Tongue* (Newsletter of ASLIP) 14, 16pp.

Hal was the father of four children: Leslie, Sara, Jennifer, and Alexander. From 1982 on Hal and his wife Nancy lived in the legendary fishing and quarrying towns of Rockport and Gloucester, Massachusetts. Intensely interested in politics, Hal served as a member of the Gloucester Democratic City Committee and Ward Chairman of the Democratic Party for the 4th Ward (2002-05).

During his last few years Hal was plagued by health challenges, including a stroke. Nevertheless, he continued his work, including a long and complicated paper applying the Four-Field approach to human prehistory, published in the previous issue of *Mother Tongue*.[17]

As an adherent of the Four Field School of American anthropology, Hal was conversant in physical anthropology, linguistics, archeology, and cultural anthropology, as well as many other spheres of intellectual endeavor. He told us that sometimes scholars in each of the four fields have not been aware of his participation in the others, thinking of him exclusively as one of themselves. This typifies another major theme of Hal's academic life: the ability to move comfortably among and through all the different disciplines touching on human prehistory, and the ability to *get scholars to talk to each other,* whether it be across the chasm between East and West, or across the sometimes impenetrable and artificial walls between scientific disciplines. We are all the richer for having been able to know and work with this remarkable man.

REQVIESCAT IN PACE

* * *

---

[16] *Ongota: A Decisive Language in African Prehistory.* Wiesbaden. Otto Harrassowitz Verlag. 2006.

[17] H.C. Fleming, S.L. Zegura, J.B. Harrod, J.D. Bengtson, & S.O.Y. Keita (2013). "The Early Dispersions of Homo sapiens sapiens and proto-Human from Africa." *Mother Tongue* XVIII: 143-187.

MOTHER TONGUE

Journal of the Association for the Study of Language in Prehistory • **Issue XX • 2015**

In Memory of Harold Crane Fleming (1926-2015)

Tributes and Memorials to Hal Fleming[18]

My heart sank when I read this very sad news. I remember Hal in Gloucester, Massachusetts, a few years ago, taking me and my wife Sabine to the Crow's Nest bar on the port — according to him, a place where no fighting happening at a particular moment was a sure sign that there would be one soon ... Then he took us to the best beaches and sightseeing places in town, driving through private roads as if the three of us were free human beings on a free planet, singing old Oromo and Amharic songs all the way.

We will badly miss his courage, his humour, his always informed questions, his joyful and serious way of seeing and doing science.

Adieu, Hal, homme debout, vieil ami toujours jeune ! Nous ne t'oublierons jamais.

Pierre J. Bancel

Association d'études linguistiques et anthropologiques préhistoriques, Paris

A great man and great scholar with great heart, stimulating scientific enthusiasm in many followers.

Václav Blažek

Masaryk University

I did not have the privilege of meeting Hal Fleming. Through e-mails and some letters, however, I could appreciate his kindness, his humor, his highly supporting attitude, and … some strong ways of expressing disagreement. When I wrote him once that I was no more than an amateur linguist, he was kind enough to answer that he was an amateur too! He added that he had been blamed rather rudely for amateurism while exposing his views on the affiliation of Ongota at a Conference in Moscow. Undoubtedly we will miss such a strong personality.

Philippe Bürgisser

Lausanne, Switzerland

---

[18] Photo thanks to Herbert Lewis.

I will really miss Hal; he has been a part of my scholarly life for so long, since I was a graduate student 50 years ago. I remember in 1965 when I thought I had discovered the existence of two seemingly previously unrecognized Southern Cushitic languages, Asa and Kw'adza, out in the middle of Tanzania, and wrote Joe Greenberg to tell him about it, Joe told me that, Oh, Hal had already found the same information about four or five years earlier (and wrote about them in his dissertation).

Christopher Ehret
University of California, Los Angeles

I shall miss Hal a great deal. I always admired his honesty and incisiveness. He was a fine man. My sympathies are with his family and with all of his many friends.

G.R. "Randy" Foote
Roxbury Community College

I too am deeply saddened. Hal and I were introduced in 2005. He immediately became one of the most memorable mentors of my intellectual life. Although I am a totally non-affiliated thinker and self-taught paleoanthropologist, with no training in linguistics, he enthusiastically invited me into the expansive field of long-ranger linguistics and the circle of *Mother Tongue* and ASLIP, to take on the role of long-ranger archaeologist. This led to my several *MT* annual reviews of archaeogenetics and our joint article. As recently as February we talked and he gave me incisive comments on an article I am working on for *MT*. May I continue to honor your confidence and guidance, Hal, and all your spirited comments.

James B. Harrod
Center for Research on the Origins of Art and Religion

I fondly remember Harold Fleming mainly for two reasons: 1) In 1968, when I spent a year teaching at Howard University, he kindly invited me for a lecture at hi department; 2) as a Chadicist I highly appreciated Harold's efforts to point to and demonstrate the special closeness of eastern Chadic languages, esp. Mubi and Migama, to the more archaic Cushitic languages, e.g. Beja and Saho. He was such a highly motivated scholar whom we shall not forget. May his soul rest in peace!

Herrmann Jungraithmayr
Institut für Afrikanistik, Goethe-Universität Frankfurt

I just opened my email yesterday, after three days in Brittany, and was shocked by this news, so sad.

Not being a professional linguist, I happened to hear about Hal only when Pierre Bancel and I published our first article in Mother Tongue. I must say that I will never forget the only evening that I spent in his company and Pierre's, first in the Crow's Nest which Pierre just described so neatly, then in a fine restaurant in Gloucester three years ago. Hal appeared to me like the most humble, while being the most cultured man, a man animated by an incredible curiosity and thirst for truth. His sense of humor was devastating, and this evening remains in my memories like one of the most hilarious in my life. My regret is that I never happened to meet him again after this, my joy is that I was able to participate to his Festschrift. I know that his contributions to his field are immense and that the avenues he opened in the study of prehistory of mankind will remain an inspiration for many.

Farewell Hal Fleming, we will miss you dearly.

Alain Matthey de l'Etang

Association d'études linguistiques et anthropologiques préhistoriques, Paris

I've just returned to Brazil from London and heard the very sad news about Hal. We all knew that he had had health problems for some time, but it's always a shock to realise that he's no longer with us.

I only actually met him once in the flesh at the 2006 ASLIP conference, but as you know, we spent many happy hours talking on the phone over more than a decade. While he may have disagreed with some of my ideas, he was always unfailingly generous in his support and resolute in his belief that everyone had a right to be heard. Indeed, I regarded him as one of my mentors and can say without any hesitation that if I have any kind of standing or reputation in the field of prehistory of language then it is principally thanks to him.

Apart from his own contributions to the field, which were considerable, Hal should be remembered as a promoter of dialogue and as someone who had the vision to grasp the importance of an 18th-century-style learned society which brought together scholars from very different fields and which went against the general trend in the sciences towards hyperspecialisation. It seems to me that the best tribute we can pay to him is to make sure that we carry on his mission by keeping the sacred flame of ASLIP burning and by demonstrating that yes we can see deep into prehistory.

Jonathan Sherman Morris

São Paulo, Brazil / ASLIP Information Officer

I first corresponded with Hal more than twenty years ago, when I first became interested in historical and comparative linguistics and contacted him in regard to *Mother Tongue*, at that time only a newsletter. Hal was warmly responsive to my initial inquiry, and encouraged me to pursue my new interest; my interactions with him in those first few years directly influenced what I would pursue as a career throughout graduate school and beyond.

I had only two opportunities to meet Hal in person, both around the turn of the millennium. He was refreshingly candid about his ideas and opinions, and had an infectious sense of humor. I admired him as both a linguist and an anthropologist and fieldworker; his contribution to long-range historical linguistics has been significant, and it is safe to say that this journal would not exist without his early efforts and continuous work and support. Hal worked hard, often thanklessly and without recognition for his many contributions to the field – may he rest in peace.

Peter Norquest

University of Arizona / Former ASLIP Secretary

I remember Hal very well, mostly through our meetings at Santa Fe Institute. He was a wonderful guy, one of the “old guard” that just isn’t made anymore. Too bad I was too young to witness him in his anthropological prime.

I passed the news on to our Moscow seminar today — Anna and Vladimir Dybo, and all of us here, send their regrets; please pass them on to Nancy for us. Ironically, we were in the middle of celebrating Vladimir Antonovich’s 84th birthday when I got your Email.

George Starostin

Russian State University for the Humanities, Moscow

Hal will be remembered fondly and dearly missed by all who knew him. It's times like this when we are reminded how badly we want life to be eternal, to think that someplace his voice can still be heard as we hear it in our memories, somewhere where nothing has changed as in our dreams.

Timothy Usher

Evolution of Human Language Project / ASLIP

Hal Fleming: An Appreciation: I first knew of Hal Fleming from Merritt Ruhlen's 1989 classification of the world's languages, in which he appears primarily as an Africanist, but also as the founder of *Mother Tongue*. This sounded like an essential read, so when I began putting together my own language database in 1994 Hal seemed the obvious person to write to—and from our first exchange he was an inspiration.

Hal believed you should look at the data, and classify, and regarded the failure to do either as a dereliction of duty. This might sound obvious, but in a field where relationships beyond a certain time depth are declared off-limits, he was very much an exception. Limits were anathema to Hal, and the only ones he would treat with any respect were the ones you reached when you looked for connections between language families and failed to find them.

He also grasped the fundamental truth that language classification is relative, not absolute; that if the case for one taxonomic arrangement is better than the case for any other, that is the classification you have to accept regardless of whether or not it satisfies some arbitrary set of mathematical criteria.

It was these same precepts which informed my own tiny contribution to language classification, and every step of the way Hal was there urging me on. He did not regard any corner of the field as exclusively his, but encouraged others to repeat the work and add to it if they could. He certainly encouraged me, and was unfailingly friendly and positive, even when my own excesses obliged him to point out that I was wrong!

I need hardly add that when not promoting the work of others, he himself produced no end of important work. Hal could always be relied upon to look dispassionately at any set of data and give the best explanation that he could, but he was also a great believer in the value of fieldwork, and helped to record languages (Shabo and Ongota) whose taxonomic significance turned out to be huge. I am sure it was not luck that led him to these linguistic goldmines, either, but an unrivalled familiarity with the whole of the data, which allowed him to see the telltale signs that others overlooked.

It might be that the deepest levels of classification are beyond our reach, and the "closure" which Hal spoke of will be forever beyond us, but Hal would have been the first to urge us to look anyway—and how else are we ever to know? Even if the only thing we are able to demonstrate is that there is a limit after all, at least we will have done it by actually looking at the data, and I can think of no better way of honouring his memory than that.

Be of good cheer, Hal.

Paul Whitehouse

Memories

Hal Fleming conducted anthropological field work in Ethiopia, Kenya, Tanganyika, Uganda, Congo, and Rwanda, supported by the Ford Foundation, 1957-1960. This photo, known as the "Addis Five," depicts Hal and his colleagues in Addis Ababa in 1959.

Left to right: Herbert Lewis, Donald Levine, Hal Fleming, Marcia Lewis, William A. Shack; Addis Ababa, 1959. Photo thanks to Herbert Lewis.

Early ASLIP meetings were held first in a Chinese restaurant in China Town in Boston and then, later, at Allan Bomhard's apartment in Boston. Here is a picture from the Chinese restaurant from 1989.

Left to right: Hal Fleming; Dan McCall; Alice Faber; and Mary Ellen Lepionka. Allan Bomhard was also there and took the picture. (Photo sent by Allan R. Bomhard 09/15/2015.)

MOTHER TONGUE

Journal of the Association for the Study of Language in Prehistory • **Issue XX • 2015**
In Memory of Harold Crane Fleming (1926-2015)

Ode to Our "Randy" Ancestors: An essay in honor of Hal Fleming

Stephen L. Zegura
Emeritus Professor of Anthropology, University of Arizona

Hal … this is for you! Hal Fleming was intrigued by Prehistory and by the various academic disciplines that provided the data, theoretical constructs, and foundational interpretations for the story of human evolution. Periodically he provided a service for the linguistically-oriented readers of *Mother Tongue* … he reviewed what he considered to be the most important recent publications in paleoanthropology and what he idiosyncratically called "biogenetics." I will attempt to continue this theme in my contribution in his honor which will highlight papers published after April 29, 2015 that I think he would have enjoyed enough to include in his next update.

But first I want to mention an important digression from a different medium, the highly informative and surprisingly scientifically accurate PBS series of five episodes entitled *First Peoples* that aired during July, 2015. Each episode tells the story of the colonization of one of five continents by *Homo sapiens* populations. In order, the programs featured the Americas, Africa, Asia, Europe, and Australia. If you have not seen this series, you should order it immediately (it is very inexpensive!). The major take-home lesson from this series is the incredibly important role of hybridization in our evolutionary history, especially for Asia, Europe, and Africa. There were no earlier hominin species present in the Americas when it was first colonized 15-18 thousand years ago and Australia remained in "splendid isolation" starting with its colonization 40-50 thousand years ago until it, like the Americas, was swamped by European incursions. Thus, on all five continents admixture (gene flow) between different demes of our own species has become a key evolutionary force sculpting the gene pool of the 7.2 billion contemporary humans. One of the principal take-home lessons from the *First Peoples* series is that genetics has largely replaced fossils and morphology as the most reliable guide to evolutionary reconstruction, ancestry determination, and the elucidation of our migrational history. The key message for the viewer is that WE ARE ALL HYBRIDS!!!

The topic of hybridization has become so central to understanding hominin evolution that the Wiley Plenary Symposium to be presented at the 2016 Annual Meeting of the American Association of Physical Anthropologists in Atlanta next April is titled "Hybridization in human evolution: what can other organisms tell us?" Experts on a number of organisms will present data from diverse taxa including hominins, Darwin's finches, amphibians, mouse hybrids, canids, bears, howler monkeys, marmoset hybrids, and baboon hybrids. The symposium organizer, Becky Rogers Ackermann, also recently published an important review article in *Evolutionary Biology* entitled *The Hybrid Origin of Modern Humans* which presents a new model for our species' emergence (A Divergence and Hybridization Model) that aligns with Darwin's view that varieties and species represent a continuum under the influence of constant mate (now gene) exchange (Ackermann, MacKay, and

Arnold, 2015). Additional recent articles that develop the theme of how crucial hominin hybridization (introgression) and admixture (gene flow) have been include Racimo *et al.*'s (2015) *Evidence for Archaic Adaptive Introgression in Humans* that details the suite (Table 1, page 365) of positively selected genes *Homo sapiens* received from the Neandertals and Denisovans, and Hillenthal *et al.*'s (2015) *A Genetic Atlas of Human Admixture History* that identifies over 100 admixture events occurring over the last 4,000 years.

Most contemporary non-African human populations contain 1-3% Neandertal DNA and 1-6% Denisovan DNA; however, except for a small amount of DNA ascribed to an unknown hominin taxon, no non-human DNA had been detected in African human demes until a 4,500 year old Ethiopian male genome was recently analyzed (Llorente *et al.*, 2015). Using this genome as the African reference because he was found to be un-admixed, a small Neandertal genetic component was found in both the Yoruba and Mbuti populations at levels from .2 - .7%, values greater than previously suggested. The paper also detected "backward" West Eurasian gene flow possibly from Sardinia to Africa involving a population closely related to Early Neolithic farmers. This "backflow" was geographically much more extensive than earlier reports, including populations from Central, West, and South Africa as well as from North Africa (Llorente *et al.*, 2015).

I will now adopt the *First Peoples* format and present some of the most informative late 2015 papers associated with human evolutionary biology using a continental perspective.

The Americas witnessed an extremely "happy" genetics-based result for the Colville Indian Tribe: Kennewick Man's genome demonstrates over 8,300 years of genetic continuity and shows clear affinities to the modern Colville population, despite earlier claims based on morphology that they were not closely related (Rasmussen *et al.*, 2015). Morphological analyses had concluded that Kennewick Man was more similar to the Ainu and Polynesians than to Native Americans, but the Kennewick genome showed it was related to Native Americans from the Pacific Northwest and to a lesser extent to Native peoples in Central and South America (Rasmussen *et al.*, 2015). Some of the members of the five tribes that originally claimed Kennewick Man actually traveled to Eske Willerslav's lab in Copenhagen to learn about the ancient DNA extraction procedures that were used on Kennewick Man and the Colville people are now pursuing repatriation of his remains (Callaway, 2015).

A pair of rival genetics-based papers on Native American origins appeared online during the same week in July in *Science* (Raghavan, *et al.*, 2015) and *Nature* (Skoglund *et al.*, 2015) and, of course, they came to somewhat different conclusions (Balter, 2015). Raghavan *et al.* (2015) combined data from 31 modern genome sequences from the Americas, Siberia, and Oceania and 23 ancient genome sequences from the Americas with SNP (single nucleotide polymorphism) chip genotype data from 79 modern individuals belonging to 28 American and Siberian populations. The data were analyzed in the context of a worldwide database of published ancient and modern people. Their main findings were that all Native Americans could be traced to Siberian ancestors 20-23 thousand years ago. Then after a sojourn of about 8,000 years in Beringia (a shortened Beringian Standstill), the Native American gene pool split into an Athabascan-Northern Amerindian branch and Southern North American-Central American-South American branch (the Southern Native American branch) about 13,000 years ago. Paleo-Eskimos and the Inuit were deemed to be a separate clade relative to Native Americans and they migrated from Siberia to the Americas much later than the single initial migration. After the initial migration and the subsequent population split (likely in the Americas), later gene flow from East Asians and Australo-Melanesian-related peoples contributed more genetic diversity to the Americas. At this point I simply mention that when I gave the Plenary Address in Vancouver for Biological Anthropology at the XI International Congress of Anthropological and Ethnological Sciences in 1983, I presented a variety of possible models for the evolutionary relationships of Native American populations. Model B in Figure 3 (Zegura 1985: page 14) is topologically almost identical to the Figure presented on p. 841 in the Raghavan *et al.*, (2015) paper!

In the other paper, Skoglund *et al.* (2015) genotyped 63 individuals from 21 Native American populations with a battery of approximately 600,000 SNPs. All data came from Central or South American groups and the samples were devoid of European and/or African admixture traces. Outgroups came from six worldwide regions with a total of 197 individuals representing 24 populations. Evidence for two separate early migrations was found: the >15,000 years ago initial migration that crossed the Bering Land Bridge from Asia and a second early, but separate, migration of an Australo-Melanesian group related to the Andamanese Onge that contributed genetically to the ancestry of a presently unknown (*i.e.*, hypothetical) possibly East Asian group (called "Population Y") which subsequently contributed to the ancestry of Southern Amerinds in Amazonia. Although the Beringian Standstill (Incubation) Model was not addressed by Skoglund *et al.* (2015), a recent paper by Tackney *et al.* (2015) based on mitochondrial DNA (mt DNA) data taken from two infant burials at the Upward Sunriver Site in central Alaska dated at ~11,500 cal. yrs. BP provides some indirect evidence in favor of the model. Infant USR1 possessed mt DNA variants that defined lineage C1b while infant USR2 fell at the root of the B2 lineage. Both lineages are rare to absent in modern northern North American populations. The extent of mitochondrial diversity in this and other early Beringian populations supported the expectations of the original formulation of the Beringian Standstill Model that proposed a fairly long migration hiatus in Beringia between approximately 30,000 and 15,000 years ago before initial entry into the Americas which was then followed by a swift colonization of both North and South America.

The 11,500 year old Sun River site is important for another reason: it contains the oldest genetically-confirmed Pacific salmon species in an archaeological context in North America (Halffman *et al.*, 2015). The salmonid bones (308 specimens) were found in a cooking hearth near the infant burial pit and an additional 29 specimens came from the pit fill. The site is 1,400 km upriver from the coast and its location has important implications for understanding Paleoindian economies and routes of geographical expansion into the interior of North America utilizing waterways. Ancient DNA analysis identified the remains as *Oncorhynchus keta*, the chum salmon, and stable isotope analysis indicated anadromy suggesting that salmon runs were already established by the terminal Pleistocene (Halffman *et al.*, 2015).

And finally … the geoarchaeologist Tom Dillehay has done it again! Almost 40 years ago he announced that humans were present at Monte Verde, Chile 14,500 years ago. It was a hard sell and it took literally decades to convince the community of scholars working on the problem of the early peopling of the Americas that he was right and the widely-championed Clovis-first model was wrong. In 2013 Dillehay and his multidisciplinary crew returned to Monte Verde and to the nearby Chinchihaupi site and made a series of additional important discoveries that may rewrite the chronology of the initial entry to the Americas (Dillehay *et al.*, 2015). The new data include twelve small, discrete burned features directly associated with faunal remains, spherical and manuport stones, and human – knapped flakes dated by ^{14}C and OSL between 14,500 and at least 18,500 calendar years ago. These newly discovered sporadic occupations seemed to coincide chronologically with periodic warming episodes after the last glacial termination and by ~ 15,000 years ago a cool temperate climate had been established. Then at ~14,500 years ago another warming trend coincided with the previously described, more prolonged Monte Verde II occupation. This new Chilean material moves the date for the earliest occupation of the Americas back another 4,000 years, thereby shrinking the hypothesized Beringian Standstill to about a 5,000 year interval at most. Now all Dillehay has to do is convince the experts that he is right again (Dillehay *et al.*, 2015)!

Over the last few months Africa has solidified its status as the cradle of early hominin evolution. Key publications include the oldest known tools, a new species of early Australopithecine, and a spectacular new undated species of the genus *Homo*. The tools come from a 3.3 million year old site (Lomekwi 3) on the western side of Lake Turkana, Kenya (Harmand *et al.*, 2015; Hovers, 2015). These stone flints, cores, hammers, and anvils predate the oldest reported *Homo* fossils from Ledi-Geraru, Afar, Ethiopia by about 500,000 years. Harmand *et al.* (2015) propose that this new assemblage be called "Lomekwian" to differentiate it from the Oldowan tradition which begins 700,000 years later. The only known hominin living in the region at this time was *Kenyanthropus platyops*.

The Middle Pliocene hominin fossils (parts of two maxillae and two mandibles plus some associated teeth) from the Burtele area of Woranso-Mille, central Afar, Ethiopia are dated to 3.3-3.5 million years ago (Haile-Selassie *et al.*, 2015; Spoor, 2015). Overall, the morphology and smaller size of the teeth distinguish these remains from those of its contemporary, *Australopithecus afarensis,* which is well-documented at Hadar, Ethiopia, only 35 km to the north. As a result, Haile-Selassie *et al.* (2015) proposed a new species designation for these specimens, *Australopithecus deyiremeda*.

An enigmatic new species of *Homo*, *Homo naledi,* was reported from the Dinaledi Chamber of the Rising Star Cave in the Cradle of Humankind World Heritage Site, Gauteng Province, South Africa (Berger *et al.*, 2015; Gibbons, 2015; Shreeve, 2015). This treasure trove of fossils includes 1413 bone specimens and 137 isolated dental specimens, with 53 teeth present in mandibular or maxillary specimens. It is the largest collection of fossils from any site in Africa. The 1550 fossils represent more than 15 individuals with both sexes and many age groups present. Almost every body part is represented. The site is 50 km northwest of Johannesburg and a mere 800 meters southwest of Swartkrans, the famous *Paranthropus* site. *H. naledi* exhibits a complex mosaic of primitive and derived traits. The brain was small (465-513 cc), but males were fairly tall (4 ft. 10 in.) and weighed 100-110 lbs. They were upright bipeds who would, however, have been comfortable in the trees. With long legs, a fairly skinny physique, human-like feet, a wrist like ours, a big toe aligned with the other toes, and a humanlike lower limb, *Homo naledi* resembles other members of the genus *Homo*. Nevertheless, the trunk, shoulder, pelvis, upper part of the femur, and long curved fingers are more Australopithecine-like. Only one square yard of the cave floor has been excavated so far. It is likely that many more specimens will be found at the site, hopefully including other taxa that will allow at least a relative date to be determined. Is *Homo naledi* thousands or millions of years old? We just don't know. How did these specimens get into the cave? We don't know, although some of the excavation crew thinks they were purposefully interred (Berger *et al.*, 2015; Gibbons, 2015; Shreeve, 2015).

Asia is unique in the large number of hominin allotaxa it harbored over the last 100,000 years. The menagerie included relict *Homo erectus* demes in Java, the diminutive, "Hobbit-like" *Homo floresiensis* from Flores Island, the three inhabitants of Denisova cave in Siberia, *Homo neanderthalensis*, *Homo sapiens*, and the Denisovans, and finally an enigmatic group known only from modern genetic data "foreign" to any known population that has been dubbed as "Denisovan-like." In my aforementioned 1983 Plenary Address (Zegura, 1985) I reiterated the Pre-Darwinian view that Asia was crucially important as a cauldron for human evolution. I actually went a bit overboard by suggesting that keys to the origins and subsequent evolution of our species (instead of what turned out to be the discovery of a number of close relatives) may be someday found in Asia. Nevertheless, we did receive selectively advantageous genes from the Denisovans, as well as from the Neandertals, so my conjecture turned out to be less fanciful than once thought.

Liu *et al.* (2015) have recently revived the proposal that our species was born in China, not Africa, in a paper detailing the oldest known *Homo sapiens* fossils in China. In fact, the only candidate for an older human fossil in Asia, the Zhirendong mandible from Zhiren Cave in South China, was dated to sometime between 55,000 and 110,000 years old; however, it is also possible that the mandible is from a late *Homo erectus* individual or that it represents a hybrid (Dennell, 2015). The new Chinese material (47 teeth) comes from Fuyan Cave (Daoxian) in southern China and is 80,000 to 120,000 years old. The teeth are small with thin roots and flat crowns like those of anatomically modern humans and their overall shape is barely distinguishable from that of both ancient and modern humans (Callaway, 2015). One cannot overstate the importance of this discovery because it means that the minority of scholars who contended that *Homo sapiens* had successfully migrated to Asia before the Toba eruption 74,000 years ago were correct. On the other hand, the vast majority of experts who maintained that (except for the probably failed Levantine excursion around 100,000 years ago) there was only a single successful wave of humans that left Africa 50,000-70,000 years ago were demonstrably incorrect (Calloway, 2015; Dennell, 2015; Gibbons, 2015b; Liu *et al.*, 2015)!

Europe was an area of high activity in journals during the mid and latter part of 2015. In a technical *tour de force* Matthias Meyer and his colleagues at the Max Planck Institute for Evolutionary Anthropology in Leipzig, Germany managed to get 102 million base pairs of nuclear DNA from the 300,000 - 400,000 years old Sima de los Huesos fossils in Atapuerca, Spain (Gibbons, 2015c). These are by far the oldest hominin DNA extracts. The two samples came from a tooth and leg bone and show surprisingly close affinities to Neandertal DNA. Previously, mitochondrial DNA from the Sima fossils showed a closer relationship to the Denisovans than to Neandertals. Meyer contends that the new nuclear DNA results imply that, despite their great antiquity, the Sima de los Huesos population were either early Neandertals or were closely related to early Neandertals. The evolutionary implications of this conclusion are far-reaching. Perhaps Denisovan-Neandertal hybridization occurred. It also means that the evolutionary ancestors of our species split from the Neandertal-Denisovan line as early as 700,000 years ago, 100,000 – 400,000 years earlier than expected. The subsequent Neandertal-Denisovan split probably occurred about 500,000 years ago with the Sima de los Huesos fossils solidly placed on the Neandertal branch (Gibbons, 2015c).

New chronological information from Ksâr Ákil in Lebanon strengthens the proposal of a Levantine route for the dispersal of modern humans into Europe (Bosch *et al.*, 2015). The two specimens were dated to between 42,900 and < 45,900 calendar years BP based on Bayesian modeling of AMS radiocarbon dates. These fossils were associated with an Upper Paleolithic toolkit and pre-dated any known European modern human remains (Bosch *et al.*, 2015). The new dates also may suggest that the recently discovered *Homo sapiens* material from Manot (Israel) provisionally dated at 49,200 – 60,200 years ago accurately places our species in the Levant well before its appearance in Europe (Bosch *et al.*, 2015).

Benazzi *et al.* (2015) studied Protoaurignacian dental remains from Riparo Bombrini and Grotta di Fumane to suggest that the Protoaurignacian triggered the demise of the Neandertals in this area of Northern Italy. Based on the morphology of the lower deciduous incisor from Riparo Bombrini and mitochondrial DNA extracted from the upper deciduous incisor at Grotta di Fumane both teeth were attributed to *Homo sapiens* rather than to Neandertals. These teeth, dated at ~41,000 calendar years BP, are the oldest human remains in an Aurignacian-related archaeological context and slightly overlap the demise of the Neandertals according to the dates of the last Mousterian sites (41,030-34,250 calendar years BP) in Southern Europe (Benazzi *et al.*, 2015).

Jones *et al.* (2015) sequenced two late Upper Paleolithic and one Mesolithic genomes from Europe and found genetic continuity in both study regions (Georgia in the Caucasus and Switzerland). The Caucasus hunter-gatherers were found to belong to a distinct ancient clade that split from western hunter-gatherers about 45,000 years ago and from the ancestors of Neolithic farmers around 25,000 years ago near the beginning of the Late Glacial Maximum. Thus, there are now four known major strands of European genetic ancestry: Western hunter-gatherers, Eastern hunter-gatherers, Caucasus hunter-gatherers, and Neolithic farmers. The Caucasus genomes contributed to the Bronze Age Yamnaya steppe-herders as well as to modern populations distributed from the Caucasus to central and south Asia. This leads to the interesting conjecture that the latter migrations may be tied to the arrival of Indo-Aryan languages (Jones *et al.*, 2015).

Günther *et al.* (2015) linked early farmers from Atapuerca, Spain to modern Basques using genome-wide sequence data from eight Chalcolithic remains excavated in the Portalón Cave and dated from 3,500-5,500 years ago. Surprisingly, the data suggest that Basques and their "isolated" language may be linked to the spread of agriculture during the Neolithic rather than being a remnant of an ancient Paleolithic group. A possible linguistic relationship of Basque to Paleosardo (the Pre-Roman language of Sardinia) is mentioned which makes sense since both Sardinians and Basques seem to be genetically associated with early farmers of Europe. Still the authors entertain the possibility that the Basque language is a retention of pre-agricultural linguistic diversity (Günther *et al.*, 2015).

The Early Gravettian inhabitants of Grotta Paglicci, Puglia, Italy left an extraordinary pestle-grinding tool dated at ~32,500 calendar years BP (Lippi *et al.*, 2015). Residues of starch grains determined to be oat (*Avena*) caryopses imply that these people were grinding oats to produce flour over 20,000 years before the Neolithic Revolution. Thus, these were the most ancient hunter-gatherers able to process plants to produce flour and they performed a thermal pretreatment, also the oldest on record. The majority of the recovered starch grains were from wild grass caryopses demonstrating that, from at least the Early Gravettian, exploitation of vegetable resources for nutritional purposes had assumed an important role in the subsistence strategies of these hunter-gatherers (Lippi *et al.*, 2015).

According to a population dynamics simulation study by Tallavaara *et al.* (2015) based on ethnographic and paleoclimate data using a climate envelope approach, climate has been a major driver of population size changes over the last 30,000 – 13,000 years in Europe. Simulated population size declined from ~330,000 people 30,000 years ago to a minimum of 130,000 people at 23,000 years ago in the middle of the Last Glacial Maximum (27,000 – 19,000 years ago). By 13,000 years ago the population had recovered to ~ 410,000 people. However, even in the coldest phase of the Last Glacial Maximum, the climatically suitable area for humans covered 36% of Europe so that the human population was probably not fragmented into isolated refugia as has been contended. Happily, the simulated patterns were found to be remarkably consistent with archaeological data (Tallavaara *et al.*, 2015).

Finally, Ruff *et al.* (2015) documented a gradual decline in mobility starting during the Neolithic based on trends in relative strength in limb bones of 1842 individuals dating from 33,000 years ago through the 20th century. The decline continued for several thousands of years as agriculture intensified until about 2,000 years ago after which there is no change in relative limb strength. The primary anatomical marker for this trend was a large decline in the anteroposterior bending strength of the femur and tibia. Declines in humoral strength were much smaller and less consistent. The authors concluded that the more gracile modern human skeleton is a result of increased sedentism tied to Neolithic farming and not to mechanization and industrialization (Ruff *et al.,* 2015).

Since there were no major publications focused on Australia that came to my attention during the period of 2015 covered by this review, I will conclude with a section that I call a *pot pourri* of papers devoted to some aspect of our evolutionary journey that I thought would pique Hal's interest.

What are the genes that helped define our species? Pennisi (2015) reviewed some of the most exciting candidates, many of which involve the brain. For instance, the *SRGAP2* gene exists as two copies in the chimps; but, we have six copies of the gene. The initial duplication occurred about 3.4 million years ago, while a second duplication occurred a little more than a million years later, creating a shorter gene with a new function. The new gene results in rodent brain cells migrating farther, sprouting more dendritic spines, and possibly making more neuronal connections! An even more impressive discovery involved a truncated copy (a partial duplication) of the *ARHGAP11A* gene known as *APHGAP11B*. Although this new gene is absent in chimps, it was found in the genomes of both Neandertals and Denisovans. When inserted into developing mouse embryo brains it caused the number of cerebral cortex cells to almost double and promoted extensive cortical folding (gyrification) of the normally smooth rodent brains. Extensive gyrification is, of course, a hallmark of the human brain. Thus, this new gene may have had a role in the development and evolutionary expansion of the human neocortex. A third brain associated gene is *HAR1* which codes for a RNA rather than for a protein. It represents a region of human DNA that has greatly diverged while the region shows little change in other animals. Accordingly, it was named human accelerated region 1 (*HAR1*). It is expressed during human brain development as nerve cells are forming connections and organizing into cortical layers. Finally, *HARE5* codes for an enhancer that sits near the *FZD8* gene which controls mammalian brain growth. The human and chimp versions of the *HARE5* enhancer have many different effects on embryonic mouse brain growth. The human version turned on much earlier and its effects covered a larger portion of the mouse brain, perhaps pointing the way to making a bigger brain in human evolution (Pennisi, 2015).

Sudmant *et al.* (2015) sequenced 236 individuals from 125 distinct human populations in their investigation of copy number variants (CNVs). They found that deletions were under stronger selective pressure (*i.e.*, were more deleterious) and are better phylogenetic markers than duplications. Of particular interest was the finding that although no Neandertal CNVs were found, five Oceanic-specific CNVs were identified that shared a Denisovan allele at high frequency. One of these, a large 225 kilo-base pair duplication, emerged ~440,000 years ago in the Denisovan lineage and was introduced into Papuans (but not Australians). It rose to high frequencies in Papuan-Bougainville populations ($p >$ 8) over the last 40,000 years after introgression from the Denisovans. The duplication codes for two micro-RNAs and represents the largest introgressed archaic hominin duplication in modern humans (Sudmant *et al.*, 2015).

The genetic basis for human adaptation continues to be a field of intensive genetic research. For instance, Fumagalli *et al.* (2015) have identified a key component of the Inuit physiological adaptation to a marine diet rich in omega-3 polyunsaturated fatty acids (PUFAs). The strongest signals of natural selection occur on chromosome 11 in a region that contains five genes, including three fatty acid desaturase genes (*FADS 1, 2*, and *3*). *FADS2* had the highest signal value and is involved in conversion of omega-3 (α-linolenic acid) to longer, more unsaturated, and biologically active fatty acids. A high dietary intake of PUFAs is correlated with increased oxidative stress. Derived variants near the *FADS* loci were associated with smaller body size and shorter stature in the Inuit (Tishkoff, 2015). Other gene variants detected in the Inuit were tied to fat distribution and to muscle and heart development (Tishkoff, 2015). The constellation of genetic systems involving natural selection discovered by Fumagalli *et al.* (2015) helps clarify Inuit adaptations to the Arctic environment. As Elguero *et al.* (2015) clearly exemplify by the results of their recent Gabonese study of sickle-cell disease, evolution via natural selection is still present in humans!

A new major study of the human Y chromosome, using 456 genographically diverse Y chromosome sequences including 299 new samples, determined that the most recent common ancestor (MRCA) of the human Y chromosome came from Africa and was dated to 254,000 years ago (Karmin *et al.*, 2015). A cluster of North-African haplogroups originated between 47-52,000 years ago consistent with a model of rapid colonization of Eurasia and Oceania. A second strong bottleneck (not seen in mitochondrial DNA data) dated to the last 10,000 years may have been associated with the advent and adoption of farming. The low estimates of male effective population size during this interval coupled with increases in male variance in offspring number could be due to changes in social structure and demographics associated with agriculture, especially if male reproductive success is partially culturally inherited. The paper includes a valuable updated phylogenetic tree of the human Y chromosome along with new coalescent dates for the origins of the major Y chromosome haplogroups (Karmin *et al*., 2015).

Hal had a special interest in the *FOXP2* transcription factor gene so it is very appropriate to mention the latest work on this system and its phonological and grammatical phenotypic effects (Adegbola *et al*., 2015). The forkhead box P2 (*FOXP2*) gene causes verbal dyspraxia with profound speech and language deficits when mutated. Adegbola *et al*. (2015) found that the human *FOXP2* gene undergoes random monoallelic expression (RMAE), an autosomal mechanism similar to X-inactivation. For the *FOXP2* system, nonmutated individuals either express the paternal allele, the maternal allele, or both alleles. In the case of the deletion-mutation individuals, there is the potential for a substantial fraction of the cells to express no *FOXP2* RNA and this may, in turn, lead to the negative phenotypic consequences associated with the *FOXP2* system (Adegbola *et al*., 2015).

Perhaps the most esoteric finding reported in the papers I reviewed surely must be the deletion found by David Kingsley at Stanford: it caused the human penis to lose the spines seen on the penises of chimps and many other mammals (Pennisi, 2015). On the other hand, the most consistent theme that resonated throughout my temporally short (May 1 - December 15, 2015) literature review is that we are close to getting answers to many questions about human evolution that have vexed experts for decades and in some cases, centuries … and importantly, that these answers will come primarily from genetics writ large. We now know, for instance, that Neandertals interbred with *Homo sapiens* at least three times between 37,000 and 85,000 years ago in the Middle East and Europe (Gibbons, 2015d). As a result we got their version of the *STAT2* gene involved in the interferon immune response that fights viral infections. We also received a number of human leukocyte antigen (*HLA*) genes which help the immune system detect foreign invaders. They gave us the *BNC2* gene associated with light skin in Europe which permits easier vitamin D synthesis. Other Neandertal derived genes protect the skin against water loss and abrasions. All of these genes facilitated adaptation of Europeans and Asians to a number of non-African environments. The Denisovans left their mark on human adaptation as well. Tibetan highlanders received a gene variant (*EPAS1*) that helped them use oxygen more efficiently (Gibbons, 2015d). Another noteworthy theme that emerged numerous times was how critically important biocultural adaptations to farming were for the subsequent biological make-up of our species.

The best summary and conclusion for my tribute to Hal Fleming that I encountered as I read through literally hundreds of papers was a succinct and insightful quote from the population geneticist Joshua Akey reported in Gibbons (2015d:366): "We're all amalgamations of the past, with little bits and pieces of DNA that originated all over the world and, in some cases, from different species." I think Hal would have been pleased!

* * * * * * *

Addendum (4/4/16): "Randy Ancestors"… Part Two!

Mid-March produced some real "bombshells" in the ancient gene flow arena. It seems that the 430,000 year old Sima de los Huesos hominins from Spain not only were early Neandertals, with Neandertal nuclear DNA, but they had Denisovan mitochondrial DNA! The split date between the line that led to us and the line that led to the Neandertals and Denisovans has been pushed back to 550,000-765,000 years ago. This means that *Homo heidelbergensis* couldn't have been the common ancestor for both lines, as many believe. The only fossils we have at the right time and right place are the enigmatic 900,000 year old Homo antecessor remains from Spain. Perhaps they are the real ancestors of the 2 lines. Obviously, there are a number of other hypotheses out there as well. The online *Nature* reference for this M. Meyer *et al.*, paper is doi:10.1038/nature17405. The one-page blurb about the paper by Ewen Callaway was published in the March 17 issue of *Nature* (vol. 531: 286). Then, on the same day (March 17) a really sophisticated analysis of human/Denisovan/Neandertal interbreeding was published online in *Science* (B. Vernot *et al.*, *Science* doi:10.1126/science.aad9416). A fine two-page summary of the above article and its importance was provided by Ann Gibbons in the March 18 issue of *Science* (vol. 351: 1250-51). Joshua Akey (last author) is the motivating force behind the sophisticated math in the paper. Ann Gibbons has added information from 2 other papers to the Vernot-Akey paper, and as a result she discusses 5 different Neandertal-human hybridization events. Thus, she includes the 40,000 year old modern human from Romania that had parts of a Neandertal genome that proved to be a dead end in that this Neandertal DNA was not found in any living human (*Science*, 22 May 2015, page 847). Finally, Gibbons mentions the finding of early modern human DNA (100,000 year old "African" haplotypes) in an Altai Neandertal toe bone from the Denisova cave that was published earlier this year (M. Kuhlwilm *et al.*, *Nature* 530: 429-433). This last discovery was actually a first in that we now know that the interbreeding went in both directions. This was suspected, but we never had evidence for the "dirty deed" before this paper! For additional pertinent recent information on hominin interbreeding, also see Ewen Callaway's excellent February 16, 2016 news report in *Nature* doi:10.1038/nature.2016.19394 and Ann Gibbons' February 16, 2016 Human Evolution post in *Science* doi:10.1126/science.aaf4077. The graphic in Callaway's news report is actually more complete than the one in Gibbons' March 18 *Science* piece!

References

Ackermann, R.R., Mackay A., and M.L. Arnold. 2015. The hybrid origin of "modern" humans. *Evol. Biol.* DOI: 10.1007/s 11692-015-9348-1.

Adegbola, A.A., and 5 co-authors. 2015. Monoallelic expression of the human *FOXP2* speech gene. *Proc. Natl. Acad. Sci USA* 112(40): 12344-12348.

Balter, M. 2015. New mystery for Native American origins. *Science* 349: 354-355.

Benazzi, S., and 14 co-authors. 2015. The makers of the Protoaurignacian and implications for Neandertal extinction. *Science* 348: 793-796.

Berger, L.R., and 46 co-authors. 2015. *Homo naledi*, a new species of the genus *Homo* from the Dinaledi Chamber, South Africa. *eLife* 4: e09560 DOI: 10-7554/eLife 09560.

Bosch, M.D., and 8 co-authors. 2015. New chronology for Ksâr Ákil (Lebanon) supports Levantine route of modern human dispersal into Europe. *Proc. Natl. Acad. Sci. USA* 112 (25): 7683-7688.

Callaway, E. 2015a. Genome results rekindle legal row. *Nature* 522: 404-405.

Callaway, E. 2015b. Teeth from China reveal early human trek out of Africa. *Nature News and Comment*. www.nature.com 14 October 2015.

Dennell, R. 2015. *Homo sapiens* in China 80,000 years ago. *Nature* 526: 647-648.

Dillehay, T.D., and 13 co-authors. 2015. New archaeological evidence for an early human presence at Monte Verde, Chile. *PLOS ONE* | DOI: 10.1371/journal.pone.0141923.

Elguero, E., and 14 co-authors. 2015. Malaria continues to select for sickle cell trait in Central Africa. *Proc. Natl. Acad. Sci. USA* 112 (22): 7051-7054.

Fumagalli, M., and 18 co-authors. 2015. Greenlandic Inuit show genetic signatures of diet and climate adaptation. *Science* 349: 1343-1347.

Gibbons, A. 2015a. New human species discovered. *Science* 349: 1149-1150.

Gibbons, A. 2015b. First modern humans in China. *Science* 350: 264.

Gibbons, A. 2015c. Humanity's long, lonely road. *Science* 349: 1270-1271.

Gibbons, A. 2015d. Revolution in human evolution. *Science* 349: 362-366.

Günther, T., and 18 co-authors. 2015. Ancient genomes link early farmers from Atapuerca in Spain to modern-day Basques. *Proc. Natl. Acad. Sci. USA* 112 (38):11917-11922.

Haile-Selassie, Y., and 8 co-authors. 2015. New species from Ethiopia further expands Middle Pleistocene hominin diversity. *Nature* 521: 483-488.

Halffman, C.M., and 6 co-authors. 2015. Early human use of anadromous salmon in North America at 11,500 y ago. *Proc. Natl. Acad. Sci. USA* 112 (40): 12344-12348.

Harmand, S., and 20 co-authors. 2015. 3.3-million-year-old stone tools from Lomekwi 3, West Turkana, Kenya. *Nature* 521: 310-315.

Hellenthal, G., and 6 co-authors. 2015. A genetic atlas of human admixture history. *Science* 343: 747-751.

Hovers, E. 2015. Tools go back in time. *Nature* 521: 294-295.

Jones, E.R., and 22 co-authors. 2015. Upper Paleolithic genomes reveal deep roots of modern Eurasians. *Nature Communications* DOI: 10.1038/ncomms 9912.

Karmin, M., and 101 co-authors. 2015. A recent bottleneck of Y chromosome diversity coincides with a global change in culture. *Genome Research* 25: 459-466.
Lambert, T., Series Producer. 2015. *First Peoples*. Wall to Wall Media Limited.
Lippi, M.M. and 4 co-authors. 2015. Multistep food plant processing at Grotta Paglicci (Southern Italy) around 32,600 cal B.P. *Proc. Natl. Acad. Sci. USA* 112 (39): 12075-12080.
Liu, W., and 13 co-authors. 2015. The earliest unequivocally modern humans in southern China. *Nature* 526: 696-699.
Llorente, M.G., and 18 co-authors. 2015. Ancient Ethiopian genome reveals extensive Eurasian admixture throughout the African continent. *Science* 350: 820-822.
Pennisi, E. 2015. Of mice and men. *Science* 349: 21-23.
Racimo, F., and 3 co-authors. 2015. Evidence for archaic adaptive introgression in humans. *Nature Reviews/Genetics* 16:359-371.
Raghavan, M., and 100 co-authors. 2015. Genomic evidence for the Pleistocene and recent population history of Native Americans. *Science* 349.aab3884 (2015). DOI: 10.1126/science.aab3884. Article Summary at *Science* 349: 841.
Rasmussen, M., and 18 co-authors. 2015. The ancestry and affiliations of Kennewick man. *Nature* doi 10.1038/nature 14625.
Ruff, C.B., and 11 co-authors. 2015. Gradual decline in mobility with the adoption of food production in Europe. *Proc. Natl. Acad. Sci. USA* 112 (23): 7147-7152.
Shreeve, J. 2015. Mystery man. *National Geographic* 228 (4): 30-57.
Skoglund, S., and 8 co-authors. 2015. Genetic evidence for two founding populations of the Americas. *Nature* doi: 10.1038./nature 14895.
Spoor, F. 2015. The Middle Pliocene gets crowded. *Nature* 521: 432-433.
Sudmant, P.H., and 50 co-authors. 2015. Global diversity, population stratification, and selection of human copy-number variation. *Science* 349.aab 3761 (2015). DOI: 10.1126/science.aab3761.
Tackney, J.C., and 8 co-authors. 2015. Two contemporaneous mitogenomes from terminal Pleistocene burials in eastern Beringia. *Proc. Natl. Acad. Sci. USA* Early Edition. www.pnas.org/cgi/doi/10.1073/pnas.1511903112.
Tallavaara, M., and 4 co-authors. 2015. Human population dynamics in Europe over the Last Glacial Maximum. *Proc. Natl. Acad. Sci. USA* 112 (27): 8232-8237.
Tishkoff, S. 2015. Strength in small numbers. *Science* 349: 1282-1283.
Zegura, S.L. 1985. The initial peopling of the Americas: an overview. In R. Kirk and E. Szathmary, eds. *Out of Asia: Peopling the Americas and Pacific*. Canberra,The Journal of Pacific History Inc., Australian National University.

MOTHER TONGUE
Journal of the Association for the Study of Language in Prehistory • **Issue XX • 2015**
In Memory of Harold Crane Fleming (1926-2015)

Archaeologia Afroasiatica I
Disintegration of the parental language[19]

In memoriam H. C. Fleming (1926-2015)

Gábor Takács
Department of Egyptology, ELTE, Hungary

Introduction

The homeland(s) and the prehistory of the population speaking the supposed parental Afro-Asiatic language, the hypothetic common ancestor of Semitic, Egyptian, Berber, Cushitic, Omotic, and Chadic languages, belong to the mysteries of Afro-Asiatic comparative-historical linguistics, which has since the 1960s, for the past half century, undergone serious development both in quantity and quality, yielding considerable results, which may perhaps appear modest in comparison with the high level of, e.g., Proto-Indo-European, one of the best known and elaborated domains of comparative-historical linguistics, but this is perhaps just a matter of relativity in the light of the lack of any noteworthy progress before the refreshingly new research by J. H. Greenberg and I. M. D'jakonov (Diakonoff) in the 1950s-1960s. Even the famous "*Essai comparatif*..." by M. Cohen (1947) still had to record, beside a modest number of the evident elements of the common Afro-Asiatic heritage, mostly rather the lacunae and the uncertainties of the common knowledge on the comparative phonology and the common root stock of the Afro-Asiatic branches outside the better known Semitic and Egyptian branches. No wonder that, at that time, no scientifically founded theory was and could be proposed on the homeland question, etc.

Although comparative-historical Afro-Asiatic until today has not got any remarkable international infrastructure (forums, journals, departments, etc.) comparable with that of Indo-European worldwide, the disappointing situation has, however, substantially changed in the second half of the 20th century thanks to a handful of enthusiastic scholars, mostly linguists, who set frames and solid bases for both the synchronic and especially diachronic study of the lesser-known African branches of our immense macrofamily (or phylum). The 1970s witnessed the first serious attempt made by I. M. D'jakonov (Leningrad, St. Petersburg), one of the founding fathers of modern Afro-Asiatic linguistics, at drawing some basic outlines in the obscurity of Afro-Asiatic prehistory using both archaeological data and the at that time brand new results of the Afro-Asiatic lexical reconstruction. Since then, a few further remarkable theories have been proposed.

My series "Archaeologia Afroasiatica" is, first of all, a survey of what has been achieved so far in this complex research domain we may label as "Afro-Asiatic prehistory" and to supply all this with my marginal notes in the light of my own research and to formulate those *dilemmata*[20] that might influence further research. The term "archaeology" has been chosen for the title of this linguistically oriented series of papers primarily for its literal sense, viz. "science of the ancient (matters)" even if the present series is intended to yield a contribution mostly by purely linguistic analyses from the standpoint of a comparativist-etymologist with attempts in certain parts at establishing a linguo-archaeological context.

---

[19] It is here that I have to express my gratitude to the Bolyai research fellowship (Hungarian Academy of Sciences, reg. no.: BO / 00360 / 12) for facilitating my project on Egyptian linguogenesis, which resulted, a.o., in a number of papers including this one and parts I to VI of my series "Layers of the oldest Egyptian lexicon," whose part I has just been published in *Rocznik Orientalistyczny* (Warszawa) 68/1 (2015), 85-139. The next part, entitled "Layers of the Oldest Egyptian Lexicon II: Upper torso," is forthcoming in *Rocznik Orientalistyczny* (Warszawa) 69/1 (2016).

Inversely, my series begins with the so far best examined oldest segments of our macrofamily's prehistory. This first issue thereof is thus devoted to the conceptions of how the macrofamily can be grouped in closer units in the light of linguistic criteria, i.e., what scenarios for the diversification of the underlying proto-language have been elaborated over the past half of a century. In the subsequent parts of the series, I am planning to examine diverse segments of the Afro-Asiatic prehistory in the light of as many as possible details connected with the individual perspectival *dilemmata*. Thus, I am about to analyze in part II certain segments of the Proto-Afro-Asiatic culture reconstructible from the proto-lexicon having an impact on the localization of our homeland and the routes of migrations, in part III the areal linguistic influences in the light of lexical parallels, in part IV the homeland question in the light of linguo-archaeological correspondences, in part V the special problem of the Egyptian linguo- and ethnogenesis.

Grouping of the Afro-Asiatic branches

This paper, once again inversely, starts with the critical survey of others' conclusions on grouping in the light of the linguistic criteria and only then, in the subsequent chapter "Isoglosses" shall I deal with the isogloss evidence thereof (sometimes rather invisibly hiding in the papers), wherever it was available.

Although we cannot yet see most of the facts around the wandering of the peoples from the diverse branches to their present habitats, we do, nevertheless, know certain data about the supposed disintegration of the proto-language and the branches thanks to glottochronology and lexicostatistic calculations. Paradoxically, henceforth, we may figure first and perhaps clearest the elements the oldest Afro-Asiatic history as a starting point of our linguistic reconstruction.

- Fundamentally declining – *pace* P. Lacau (1912)[21] and M. Cohen (1924)[22] – the traditional grouping of our phylum into Semitic vs. "Hamitic" as scientifically ill-founded, J. H. Greenberg (1955, 51-55; 1963, 46-49, §III) was the first to state that our macrofamily can be classified in five equipotential branches or families: Semitic, Egyptian, Berber, Cushitic, and Chadic. Henceforth, he was also the first to include the Chadic languages as a whole (in great number) in the comparison. Earlier, practically solely Hausa was used for such purposes, even in the "*Essai comparatif* ...," the first comparative lexicon of the macrofamily from 1947 by M. Cohen, who had been reluctant for a long time before that and even later to accept the affiliation of Hausa and its Chadic relatives within Afro-Asiatic.[23] Greenberg was also the first to scientifically establish the reasons of using the new designation "Afro-Asiatic" replacing the traditional name "Semito-Hamitic," although the new term itself was first used by M. Delafosse (1914) as pointed out by P. Newman (1980, 11, fn. 21), albeit along with the old label "Hamitic."[24] In the 1970s, the separate status of the Omotic languages (formerly classified as the western sub-branch of Cushitic) representing an independent branch was recognized by H. Fleming and M. L. Bender. So far – to the best of my knowledge – the following classification theories have been proposed.

---

[20] *Dilemma*, as used here, refers to a choice between options, as the author [G.T.] discusses in his survey of alternative subgroupings of Afro-Asiatic [Ed.].

[21] Already Lacau (op. cit., p. 207) recognized the distinct status of four branches, namely Egyptian, Semitic, Berber, and Cushitic (this latter one was the only one labelled by him as "Hamitic" contrary to the older practice): "*Dès maintenant l'égyptien, les langues sémitiques, les langues berbères, les langues est-africaines (ou chamitiques = somali, galla, bichari, etc.) nous apparaissent comme quatre rameux distincts issus d'une souche commune.*" Cf. also Newman 1980, 11, fn. 20.

[22] Cohen (op. cit., esp. p. 83) wrote: "*Il n'y a pas lieu ... de croire à la parenté spéciale entre l'égyptien, le libyco-berbère et le couchitique que suppose leur réunion habituelle sous le nom de chamitique; il ne sera donc pas question ici d'un groupe chamitique.*" But he too, left Chadic as a whole out of consideration. Cf. Newman 1980, 10.

- At the end of his first and revolutionarily new synthesis of an Afro-Asiatic comparative grammar, in the last chapter devoted to a "Conclusion," I. M. Diakonoff (1965, 99-102 in Russian; 1965, 102-105 in English) was, to the best of my knowledge, the first to outline the macrofamily's prehistory in our modern Afro-Asiatic science. He was also to first single out, for me apparently correctly, a Northern Afro-Asiatic (NAA, represented by Semitic, Egyptian, and Berber, in which internal inflection = apophony developed to a higher degree) and a Southern Afro-Asiatic (SAA: Cushito-Omotic and Chadic) block on the basis of 23 grammatical isoglosses (pertaining to the root, word-formation, noun morphology, pronoun, verbal morphology, examined below in the 2nd part of this paper), which resulted in presuming the tightest links of Berber to Semitic on the one hand and to Egyptian on the other, albeit the isoglosses connecting Semitic to Egyptian and Chadic were the least numerous. This led Diakonoff to suppose Chadic to have separated the earliest from SAA vs. Egyptian (where the original verbal construction was replaced by a possessive or prepositional one) from NAA. In the latter block, "*Proto-Semitic continued for a time its contacts at least with Berbero-Libyan ... but probably also with Cushitic ... (cf. the emphatic element 'an- in the personal pronoun, the conjugation of the verb, the system of inflection in the noun ...)*," while, in the same hypothesis of Diakonoff (op. cit., p. 104), Proto-Semites and Proto-Egyptians must have cohabited in the Nile Valley in the first half of the 5th mill. BC. Elsewhere, he (op. cit., p. 105 of the English version) was speaking of the "*Cushites ... continuing for a long time their contact with the Libyans (and the Egyptians?)*." Not all of the 23 isoglosses examined by Diakonoff, are, however, in my view, decisive as for the original divisions of the proto-languages (see the second and the conclusion sections of this paper below).

- On the basis of his own reduced list of 15 grammatical isomorphs, M. L. Bender (1975, 218-224) concluded that "*Semitic, Berber, Egyptian, and Cushitic form an 'orthodox core' of Afroasiatic. Chadic is just outside this whole core. Omotic is ... quantitatively weak in Afroasiatic characteristics ... However, Omotic still shares enough with the other Afroasiatic families ... that it is a member, though the most divergent one. It would seem that Omotic represents the oldest branching in the ... family tree*" (op. cit., p. 218). Examining "*the grammatical diversity within Cushitic*," Bender arrived at the conclusion that, albeit it is "*much less marked*" than the lexical one (below), it suggests "*a central core of Awngi-Sidamo-Oromo as against independent outliers Beja and South Cushitic" (the latter two being independent of each other also)*" (op. cit., pp. 219-220). He also proposed a slightly modified division based on the lexical isoglosses: "*Once again, Semitic-Berber-Egyptian forms part of an orthodox core, but Cushitic seems not to fall within the core*," although "*the extraordinarily high percentages Cushitic shares with Semitic and Berber are suspicious: perhaps largely contactual*" (op. cit., p. 218). All in all, "*Cushitic and Omotic both lie outside the core, while Chadic takes the place of Cushitic in the core*," while "*the lexical diversity within Cushitic is so great as to make ... perhaps a wholesale disintegration of Cushitic*" needed, which was first suggested to him by G. Hudson (op. cit., p. 219). Lexically, "*Beja may be significantly closer to Sidamo-Oromo ... than to either Awngi ... or Iraqw*" (op. cit., p. 220). Finally and accordingly, Bender (op. cit., p. 224, fig. 17) set up two Afro-Asiatic family trees: in both cases, the "central core" is coherently the same (Semitic, Berber, Egyptian

---

[23] More on the reluctance of M. Cohen to include Chadic over the decades of his diverse works can be learnt in Newman 1980, 11-12.

[24] Delafosse (1914, 22) divided the "langues afro-asiatiques" into three branches, viz. "sémitique," "hamito-berbère," and "hamito-kouchitique" (sic), i.e., he apparently maintained the old label "Hamitic" attached to the African kindred purely out of geographical reasons. He ignored Egyptian, while Hausa was listed among the "Nigéro-logonais" languages.

– in this order in both trees), from which grammatically Cushitic, Chadic, and Omotic were more distant, while lexically Chadic and Cushitic + Omotic (symbolized in the tree as a tighter branch). In either case, Omotic ended up as the first branch separating from the rest to become – in Bender's (op. cit., p. 58) words – "*by far the 'weakest link' in Afroasiatic.*"

- Using the glottochronological method refined after Ch. Rabin's presentation at the first Congress of Semito-Hamitic Studies (London, 1970, cf. Rabin 1975), I. M. Diakonoff (1975, 128-129) was the first to point out that Proto-Cushito-Omotic (and Proto-Chadic?) was the earliest branch that separated from the common Afro-Asiatic parental language in the 8th mill. BC, whereas the branches of the Northern Afro-Asiatic block (where he classified Semitic, Egyptian, and Berber) were disintegrating much later. Diakonoff (followed then by a number of comparative linguists) was together with Bender (1975) also the first to state that the comparably higher degree of linguistic diversity of the Cushitic groups (including Omotic too at that time) testifies to a substantially much older diachronic level of Proto-Cushito-Omotic (8th mill. BC) than that of Proto-Semitic (4th mill. BC).

- M. Bernal's (1980 MS quoted by Bender 1997, 28) idea on the earliest explosion(s) of the parental community fundamentally into Chadic, Omotic, and Central blocks, which was later developed further by M. L. Bender (op. cit.), supposed the entire explosion process taking less than a millennium. Bernal was apparently the first scholar to suggest Omotic to separate first from the Afro-Asiatic community.

- P. Newman (1980, 22, fn. 36) was speaking of the matter merely on the basis of superficial surmises: in his words, his "*impressions at this point favor a three-branch structure for Afroasiatic, each branch containing two members, namely*": (1) Berber + Chadic, (2) Egypto-Semitic, (3) Cushitic, while as for the 6th branch, he briefly concluded that "*I do not consider the Omotic languages (Greenberg's "Western Cushitic") to be Afroasiatic at all,*" with which one can by no means agree given the fundamental agreement of Omotic grammemes[25] and lexemes[26] with the rest of Afro-Asiatic. All this was, however, just a short remark by Newman compressed in a footnote without further reasoning.

- With regard to the lexical and grammatical isoglosses (not demonstrated in detail), I. M. Diakonoff (1981, 29; also 1996, 293-294) significantly modified his older (1975) Cushito-centric view (cf. above): now, he grouped Semitic, Cushitic, Berber together as "East-West Afrasian" (EWA), on the one hand, and Egyptian with Chadic as "North-South Afrasian" (NSA), on the other. That is, he seems to have no more insisted on the primacy of Cushito-Omotic as the most ancient branch(es) to separate from the parental language, while he excluded Egyptian from the northern block (EWA) the same way as done by M. L. Bender (1996, 65) later, cf. below. Diakonoff (l.c.) argued that "*The seemingly great similarity between E(gyptian) and S(emitic), especially in root- and word-formation and in personal pronouns, is apparently due to the diachronic and typological proximity between Old Egyptian and the ancient Semitic languages, especially Old Akkadian, while no diachronically comparable ancient Chadic language has survived. There is very little similarity between the latest form of Egyptian – Coptic – and Semitic at any stage of its development.*" This is, however, no sufficient justification for extracting Egyptian from the Semito-Berber circle dominating by a penetrant apophony. The methods of Diakonoff were severely, albeit on some points rightly, criticized by P. Behrens (1984-5, 136): "*(1) Der Aufsatz leidet an einem ... bibiothekarischen Defizit. (2) Der methodische Ansatz, nach dem die verschiedenen belegten Lexeme zu Proto-Wurzeln zusammengefaßt und damit als afroasiatisch erklärt werden, bleibt zu oft dunkel. ... (3) Das gravierendste Manko aber bildet die Tatsache, daß die ökonomische Basis der Sprecher des Afroasiatischen nicht herausgearbeitet wird.*" This led him to re-examine the linguo-archaeological evidence pertaining to the wanderings of Berber nomads – albeit by far not whole issue of Afro-Asiatic peoples – in a lengthy study.[27]

---

[25] E.g., cf. the systems of Omotic personal pronouns as demonstrated by V. Blažek (1995, 51-52, §9).

[26] E.g., cf. the Omotic anatomical terminology (Blažek 1989 MS Om.) or the Omotic lexical stock with initial labials set in Afro-Asiatic context in the papers by G. Takács (2011; 2012, 103ff.; 2012, 161ff.).

[27] His results are to be discussed in part IV of my series: "Homeland and wanderings" (forthcoming).

• H. C. Fleming (1983, 21-24, §§9-10), in turn, using lexicostatistical results, assumed Omotic to have split off first from the oldest stage of Proto-Afro-Asiatic (showing for him the least in common with the rest, which led P. Newman, quoted above, to simply deny the Afro-Asiatic nature of Omotic) and only then, substantially later, both geographical extremities, Semitic and South Cushitic (labelled by him as "Old East African Cushitic") separated from the core block he called – *pace* A. N. Tucker and M. A. Bryan – "Erythraic" (replacing, albeit for a similar purpose, the old term "Hamitic" of racist connotations), where all the rest of the macrofamily was rearranged by him in a new (as a whole), albeit (in its details) not quite strange manner. First of all, Fleming (op. cit., p. 21, §9) has also postulated a tightly related Berbero-Chadic unit (*pace* P. Newman, supported also by H. Jungraithmayr), beside which Egyptian was closely, albeit distinctly developing: "*Egyptian is definitely closer to Chadoberber (Libyco-Chadic), especially Berber, than to Semitic*" (op. cit., p.24), whereas from Cushitic (labelled by him as "Cushiopian," comprising purely Agaw and East Cushitic) he distanced Beja (after R. Hetzron), which "*shares more in fact with Chadic than Cushiopian does*" (op. cit., p. 23, §9). Eventually, Fleming (op. cit., p. 23, discussion part) presumed "*three primary clumps or major sets of daughters in addition to the evidently divergent Omotic clump*": (1) Semitic, (2) Erythraic, (3) South Cushitic. All in all Fleming (op. cit., p. 23) basically, albeit not at all equally followed Hetzron (1980) in the "*demolition of traditional Cushitic*," from which the latter, however, singled out (1) Beja, (2) Agaw + Highland East Cushitic, (3) Lowland East Cushitic + South Cushitic, whereas the former conceived East Cushitic together as one unit.

• A. Ju. Militarev (1984, 10) isolated an Eastern Afro-Asiatic (Semitic and Cushitic) and a Western Afro-Asiatic family (comprising Egyptian and Chadic) primarily on the basis of some (unnamed and unspecified) grammatical isoglosses (of the verbal and pronominal systems), while he regarded Berber as representing an intermediate phase between the two blocks, morphologically closer to EAA, but lexically to WAA. Examining the isomorphs led Militarev to no evident results as for Omotic, which he decided to omit from his family tree. In his scheme 1 (op. cit., on p. 44) devoted to illustrate the divergence of the Afro-Asiatic phylum as reconstructed from his glottochronological calculations, however, Militarev postulated just Proto-Omotic as the oldest branch to have first separated from Common Afro-Asiatic (a few centuries prior to 7000 BC), which was followed by Proto-Cushitic (around 7000 BC), by Proto-Semitic (6000 BC) and Proto-Chadic (6000 BC), only substantially later Proto-Berber (4000 BC) and Meroitic + Nubian (4000 BC) conditionally classified by Militarev within our phylum, while the divergence of Proto-Egyptian was left by him obscure.

• M. L. Bender (1986, 149) – in the light of R. Hetzron's (1980) "*thorough review of Cushitic morphological properties*" – viewed "*Afrasian as having four main divisions as follows:*" (1) Southern AA = Omotic + Cushitic, (2) Beja, (3) Western = Chadic, (4) Northern = Semitic + Berber + Egyptian. As he rightly noted, they were with H. C. Fleming (1983, 22, cf. above) far from any consensus in their tree schemes: "*The differences seem greater than the similarities.*" In spite of the closeness of Omotic vs. Cushitic, Bender (op. cit., p. 153) still declined A. Zaborski's (1986) suggestion to re-establish Omotic as West Cushitic. Later, however, Bender (1997, 30, n. 1) refrained from his 1986 family-tree even in general: "*I now reject my classifying Cushitic and Omotic as coordinate branches of Afrasian as in my 1986 article under the name 'Cushomotic'.*" As for the 2nd branch, Bender (1986, 149) was uncertain: "*The position of Beja is a bit uncomfortable: I feel that Beja probably belongs with Southern but one cannot yet rule out Northern or an independent branch as shown above.*"

• Later, I. M. Diakonoff (1988, 22-23) once more slightly refined the 1981 conception: albeit he kept admitting the closeness of Semitic and Berber in their morphological structures, but he rightly noted that this was not true of their vocabulary, whereas, in his view, Berber shares many phonological and morphological features with Bedawye, let alone the prefixal conjugation of the verbs of action (cf. also op. cit., p. 31, n. 9) common to Semitic, Berber, Bedawye (in many verbs), and some Agaw and East Cushitic languages ("*vestigially attested*"). On the other hand, he also rightly stressed the number of lexical isoglosses plus the lack of prefix conjugation connecting exclusively Egyptian and Chadic possibly as a common block, "*though the contact between them evidently disrupted for a very long time.*" Eventually, Diakonoff (op. cit., p. 23) concluded to an Egypto-Chadic subfamily (including also Omotic?), which was, in his theory, the first to break away from the basic Common Afro-Asiatic nucleus not later than the 8th mill. BC, contrasting with the Semito-Cushitic block. Elsewhere, Diakonoff (1988, 23) changed his mind surmising "*that the speakers of Egyptian were the first to break away from the basic Proto-Afrasian nucleus not later than the 8th millennium B.C.*" This scenario is, however, not necessarily the only explanation as there is another possible one at hand, viz. a secondary Egypto-Chadic areal cohabitation. These and similar controversies in his scenarios(s) were already pointed out by M. L. Bender (1997, 19-20): "*there are apparent inconsistencies in the account of Diakonoff 1988.*"

- I. M. Diakonoff (1995 MS, 8; 1998, 216-217) basically once again reaffirmed his position expressed in 1981 and 1988 on an East-West (Semito-Berber + Bedawye) vs. North-South (Egypto-Chadic) Afrasian dichotomy. He left the rest of Cushitic unclassified noting that Semitic shares much fewer grammatical isoglosses with Cushitic than with Bedawye, whereas with Omotic hardly any, "*which actually may not be Afrasian at all.*"

- Discarding his old scenario of solely Cushito-Omotic ("Cushomotic") being "*as the first split against the rest*" (1975, cf. above), M. L. Bender (1997, 22, Chart 1), who now worked with some selected isomorphs, lexical isoglosses as well as with word-order of syntax, presumed "*three major families of the Afrasian phylum*": Omotic and Chadic were the first to separate from the Central block, from which Egyptian soon distanced itself and then "Macro-Cushitic" was divided into Berber, Semitic, and the diverse Cushitic sub-branches. He (Bender 1996, 65) reproduced almost the same family-tree except for Egyptian, which he extracted from the Central block and treated here as a third split-off from Common Afrasian. Bender (1997, 25, 27) was – contrary to previous Semito-centric classifications – "*of the opinion that we must 'turn Afrasian upside-down'. Semitic is not typical of Afrasian, but is a relatively recent offshoot of the B(erber-)S(emitic-)Cu(shitic) branch of Afrasian. ... Cushitic is so diverse ... that it is not a single family ... There may really be as many as six families: Beja (North), Afar-Saho, Agaw (Central), Lowland East(,) Highland East, and South Cushitic. If this is true, I would now propose adding Semitic as a seventh family of 'Macro-Cushitic'.*" Another – similarly daring – step in this scenario was "*The possibility of including Indo-European in Macro-Cushitic*" as suggested by Bender (op. cit., p. 28, §5) on the basis of a few isoglosses (cf. the section "Isoglosses" below).

- Ch. Ehret (1999, esp. p. 81 and p. 93, Abb. 1; 2000, 292, §11.4.2; n.d. MS, 19, §4.2), following the path opened by M. Bernal, M. L. Bender, H. Fleming on the basis of his glottochronological calculations, assumed that "*the first divergence in the family gave rise to a narrowly spread branch, Omotic ...*" What remained he also labelled as Erythraic: "*The second period of this history, in which proto-Erythraic diverged into two groups, produced one branch, Cushitic and a geographically extended branch, North Erythraic,*" which, in turn fell into Chadic + a certain "Boreafroasiatic" unit = Egyptian, Berber, Semitic as the family tree (op. cit., p. 292, fig. 11.19) shows. Ehret (2000, 293; n.d. MS, 20-21) gained "incontrovertible" lexical evidence for the histories of the individual branches: e.g., "*livestock raising and cultivation appears only at the proto-Cushitic, proto-Chadic, proto-Berber and proto-Semitic periods,*" whereas "*the earliest Omotic speakers were an offshoot of the proto-Afroasiatic grain collectors, because they maintained some of the wild-grass-collecting words used by their proto-Afroasiatic forebears,*" which seems to suggest the age of Proto-Omotic to be much closer to the food-collector Proto-Afro-Asiatic phase. Noteworthy is Ehret's (2005, 103-104) lexical evidence indicating "*the raising of sheep and goats ... did not originate among the Nilo-Saharans at all, but spread to them after the proto-Saharo-Sahelian period in our stratigraphy. The sources in each case were languages of the Afrasian (Afroasiatic) family. For example, ... *tam ... "sheep" in the Saharan group of languages was an ancient loanword from Chadic ... Similarly, the proto-Sahelian root word for 'goat,' *ay, came originally from ... Beja ...*" He had made a number of further precious and original observations on the proto-cultures and wanderings of the branches, which will be discussed in part V of my present series.

- In the light of his original glottochronological calculations (based on a system modified by S. A. Starostin, Moscow), A. Ju. Militarev (2000 MS) reaffirmed – partly *pace* D'jakonov (1975, cf. above) – the old scenario (the estimated date of the separation of the underlying proto-languages are in brackets), namely that Proto-Cushito-Omotic was first (around 9700 BC) to split off the parental population, whence Cushitic vs. Omotic separated from one another around 8200 BC, and soon thereafter Egyptian (8900 BC) also from split off the rest, which block diverged only substantially later: Berbero-Chadic (around 5400 BC), followed then by Semitic (the preceding both around 4300 BC). Although Chadic and Berber was divided, the latter diverged much later (1200 BC). In the publication of his 2000 presentation (to which the above described family tree belonged), Militarev (2000, 216) generally assumed "*the ninth-tenth millennia as the time of split between Cushito-Omotic, Semitic, Egyptian and Berber-Chadic.*"

• Later, A. Ju. Militarev (2004 MS) made new glottochronological calculations and modified the family tree as follows (in brackets the estimated date of the separation of the underlying proto-languages): as before, he also now assumed a relatively short lasting South Afro-Asiatic block (7510 BC) with its both branches, Cushitic (6170 BC) and Omotic (5370 BC), which were the first to split off. Then, a few millennia later, the substantially much longer enduring North Afro-Asiatic (8640 BC) block began to diverge, first into Semitic (4090 BC) + the rest = African North Afro-Asiatic (7560 BC) > Egyptian (2740 BC, sic!) + Chado-Berber (5480 BC) > Chadic (5030 BC) + Berber (1000 BC, sic!). It is obvious that the dates for the divergence of Proto-Egyptian and Proto-Berber are set anachronistically late.

• Noteworthily, using different criteria (including those of paleobotany and -zoology), R. Blench (2006, 148, fig. 4.8 and pp. 152-162) arrived basically at the same position, namely that Omotic (and Ongota?) separated itself first and then soon Cushitic-Chadic, while what had remained *in situ*, i.e., North Afro-Asiatic (Semitic, Egyptian, Berber), was dissolved substantially later, which seems to me to be the most realistic scenario. He called, however, this whole phylum Erythraic, which he connected with Elamite (!) as the oldest Afro-Asiatic branch to split off. Actually, V. Blažek (1994 MS Delhi) included Elamite for the first, although he only apparently meant areal cohabitation and not a genetic kinship, which was certainly not the case.

• R. Leger (2014, 124) has drawn a rather surprising picture. First of all, he states that "*the speakers of the Proto-Semitic language family must have left the common 'Urheimat' first.*" This absurd allegation totally contradicts the solid results from diverse authors listed in this paper (above and below), which are pretty evident about the coherent Semitic-Berber-(Egyptian) block, which diverged presumably later than the southern branches (Omotic, Cushitic, Chadic). Another surprise is: "*The timeframe we propose – and here we roughly follow Diakonoff (1988: 23ff.) – could be around 9.000 B.C.*" I checked the page in question in Diakonoff's book: I found nowhere such a mention of Semitic. On the contrary, he was speaking of the speakers of Egyptian as "*the first to break away from the basic proto-Afrasian nucleus*" (Diakonoff 1988, 23). Leger continues: "*They were followed by the Ancient Egyptians whose departure might be estimated not so much later, presumably ca. 7.000 years B.C.*," for which he quoted "*Luft: personal communication*" (pretending as if U. Luft were an expert in prehistoric Egyptian archaeology!), although this theory clearly comes from the above cited work by Diakonoff! "*The next who have left the common homeland – and here we rely on Behrens' hypothesis (1984/85) – were the Proto-Berber on the verge of the 7th to the 6th millennium B.C.*" This is again in contradiction with the *communis opinio*, namely the commonly assumption of the closest related Semito-Berber unity, presumably the last one to diverge. "*The next population that left the 'Urheimat' were the Proto-Chadic speakers ...*" We do not learn either why Leger considers "*The time of their separation from the Proto-Cushites ... as around 5000 to 4000 years B.C.*," although Ch. Ehret (2000, 292), whose results he himself referred to here, proposed the 6th millennium B.C. "*The last to leave the Proto-Afrasian 'Urheimat' were the Proto-Cushites .... The time of their migrations is considered to be 3000 to 2000 years B.C.*" – perhaps these astonishing words are most revealing to what degree Leger is unfamiliar with this domain, where Cushitic has been commonly accepted (Diakonoff, Bender, Fleming, Hetzron, Militarev, cf. above) as the most diverse and thus one of the oldest Afro-Asiatic branches. Finally, he ignored Omotic as a whole without a mention, although this branch has been estimated by several researchers to be the first to separate from the common parental community (Bernal, Bender, Fleming, Militarev, Blench, cf. above). What I find in Leger's paper, I am afraid, is unfortunately a chaotic and carelessly composed unreliable mess of unchecked quotations and baseless speculations.

Isoglosses

May I now venture to survey all the details of the linguistic isoglosses I have been able to extract – wherever these appeared relevant to grouping – from the studies discussed above.

- The "Semito-Hamitic Isoglosses" established by I. M. Diakonoff (1965, 103, table XI) pertain to *lexical root structure* (**1.** predominance of triconsonantal root, **2.** presence of vowel in "normal" verbal root), *word-formation* (**3.** *ma-* a separate lexeme, **4.** internal inflexion as main method of word-formation), *noun morphology* (**5.** sign *-w* of masc. gender, **6.** plural in *-ā-*, **7.** plural in *-ān-*, **8.** plural by lengthening of case-ending in masc. gender, **9.** plural by reduplication), *pronoun* (**10.** *'an-* in personal pronouns of the direct case of 1st and 2nd persons, **11.** *nt-* in personal pronouns of the direct case of 2nd and 3rd persons, **12.** ending *-t* in pronouns, **13.** stems *n-*, *m-* in pronouns of 1st person sg./pl. in direct case and in poss. forms, **14.** genitive marker *n*, **15.** genitive marker *ḏ*), *verbal morphology* (**16.** prefix-conjugation of both aspects, **17.** lexical independence of the personal subject element, **18.** possessive construction instead of verba finita, **19.** possessive construction (but not instead), **20.** supplementary particles between verbal stem and subject), *verbal stirpes* (**21.** with complete reduplication, **22.** of *m-* type, **23.** with suffixation of *-t*, *-s*). In the light of the positive correspondences, the North Afro-Asiatic branches are evidently tightly mutually related (Sem.-Eg.: 13, Sem.-Brb.: 15, Eg.-Brb.: 13),[28] but – it is noteworthy – almost as coherently as the NAA branches with Cushitic alone (Sem.-Cu.: 12, Brb.-Cu.: 12, Eg.-Cu.: 11), while the ties of NAA with Chadic are substantially weaker (Sem.-Ch.: 6, Brb.-Ch.: 7, Eg.-Ch.: 7), but just a bit weaker than between both SAA branches (Cu.-Ch.: 8). Out of D'jakonov's 23 isoglosses, merely 5 cases (nos. 2, 4, 9, 16, 20) represent, in my view, those main criteria that, replying to the question "how?," are the least exposed to secondary areal influence and are thus to be accounted for as decisive. If we consider merely these scores, the result becomes even more evident: NAA branches together are evidently more coherent (Sem.-Eg.: 3, Sem.-Brb.: 5, Eg.-Brb.: 3) than NAA vs. Cushitic (Sem.-Cu.: 2, Brb.-Cu.: 2, Eg.-Cu.: 1), the connections of both SAA branches with one another (Cu.-Ch.: 3) are exactly as tight as those of Egyptian with the two other NAA branches, whereas the NAA vs. Chadic ties are substantially weaker (Sem.-Ch.: 1, Brb.-Ch.: 1, Eg.-Ch.: 1). We may thus certainly postulate a NAA block, where Semitic and Berber represent the closest related unit in the whole macrofamily (strangely, however, with close ties to Cushitic, which are still to be explained), from which Egyptian separated somewhat earlier, but much later than Cushitic from this, which seems to have formed a SAA unit with Chadic, the earliest branch to bud off according to the scheme above.

- Chapter 4 in the revolutionary Omotic monograph by M. L. Bender (1975, 49-123) is devoted to a (until now unchallenged) detailed analysis of several of the "Afroasiatic grammatical characteristics" he listed (1975, 54-55) out of the 36 Afro-Asiatic isomorphs (used for verifying the "Afro-Asiaticity" of a language) as a result of his calculations,[29] viz. **1.** verb-root consonant co-occurrence restrictions, **2.** the internal broken plural with **-a-*, **3.** noun pl. with *-n*, **4.** noun pl. in *u* ~ *o* ~ *w*, **5.** poss. and obj. affix pronouns differing in 1st sg., **6.** specific shapes of verb-affixed pronouns, **7.** specific shapes of poss. suffixes, **8.** masc./fem. pl. pattern *n/t/n*, **9.** interrogative having *-m-*, **10.** nouns derived by *m*-affix, **11.** interrogative **ay* ~ **aw*, **12.** *-a-* in present tense, **13.** special negative imper. form, **14.** *s-* caus., **15.** *t-* intransitive. "*the horizontal sums of positive results for given isomorphs ... we find the following (out of a maximum possible total in each case of 15)*" (op. cit., 56): Proto-Semitic (15) > Akkadian (15), Arabic (12), Geez (12); Egyptian (12); Proto-Berber (12) > Tamazight (14), Shilh (10); Proto-Cushitic (14) > Beja (12), Awngi (10), Sidamo (11), Oromo (12), South Cushitic (9); Proto-Omotic (4) > Wolamo (5), Kafa (5), Dizi (3), Hamer (7); Proto-Chadic (11) > Hausa (12),

---

[28] These figures (not listed by Diakonoff in his book) were summed by myself with slight improvements, viz. under criterion no. 2, Diakonoff's question mark was emended to – in Eg. and to + in Cu., whereas under criterion no. 4, his +? was bettered to evident + by me.

[29] In his chapter 2, Bender used 36 "*features ... as most relevant to answering the question 'is a given language Afroasiatic?' ... The final choice of features omits many found to be purely typological ... or otherwise problematical*" (op. cit., pp. 49-50). "*In determining whether a given one of the remaining twenty-four features is or is not an Afro-Asiatic isomorph, a simple majority decision is made: ... if a given feature scores + for ten or more of the eighteen representative languages, it is considered an isomorph*" (op. cit., p. 53). He thus got 15 isomorphs listed above.

Margi (7), Mubi (8). "*The reader can study this set of figures and arrive at his own conclusions. I shall refrain from comment here*" (op. cit., p. 56) … "*it is seen that Semitic, Berber, Egyptian, and Cushitic are all about equally 'orthodox' Afroasiatic; Chadic is somewhat weaker, and Omotic is very weak. In fact, Omotic is by far the 'weakest link' in Afroasiatic.*" (op. cit., p. 57-58).

• A. Ju. Militarev (1984, 10) has made first steps towards Afro-Asiatic linguo-archaeology by etymologically demonstrating the secondary contacts among the diverging branches: he managed to establish 23 special Semito-Egyptian isoglosses in general from the cultural lexicon (op. cit., pp. 14-17) noting that, at the same time, he managed to observe hardly any specifically Eg.-MSA isoglosses, but he isolated a whole series of special Arabo-Egyptian lexical parallels (not listed in his paper due to lack of space). He presented 16 isoglosses connecting Cushitic and MSA in the basic lexicon that is usually not borrowed (op. cit., pp. 18-19: 3 parallels between MSA-ECu., 3 Soqotri-ECu., 3 Soqotri-Agaw, 3 Soqotri-NOm., 4 Soqotri-Cu.), 3 MSA-Berber (op. cit., pp. 20-21), 5 Berbero-Cushitic (op. cit., p. 21), 5 Egypto-Berber (op. cit., pp. 22-23), 4 Egypto-Chadic (op. cit., p. 23), 2 Cushito-Omotic vs. Chadic (op. cit., p. 24).

• Accepting A. Zaborski's (1986) exclusively "Cushomotic" conjugational isomorph as "*firmly established*" (perfective *-e/-i*, imperfective *-a*, subordinate *-o/-u*), which was used by the former to reclassify Omotic as West Cushitic and reaffirmed by Alemayehu (1981) in both Cushitic and Omotic, M. L. Bender (1986, 149-153, esp. p. 153, cf. also Bender 1997, 30), however, pointed out that, albeit "*we find Zaborski's isomorph getting strong support in both major branches of Omotic. ... But one need not accept his further conjecture that this isomorph re-establishes Omotic as 'West Cushitic'.*" His pupil, Alemayehu (1981, 58-59) was advocate for that "*The ... discussed tense-marking feature is one isogloss which suggests that Omotic may form a family within Cushitic. Bender's lexical evidence also puts Omotic closer to Cushitic than to other Afroasiatic families. These two putative isoglosses, one grammatical and the other lexical, may be taken as providing support to Zaborski's claim ... However, it takes more than one isogloss to establish a language family and it is obvious that 'Omotic' needs to be studied further.*" Later, Bender (1997, 30, n. 1) not only reaffirmed this position ("*one isomorph does not make a family and I find the weight of other evidence which indicates that Omotic is one of the earliest branches of Afrasian more convincing*," but he also refrained from his 1986 family-tree: "*I now reject my classifying Cushitic and Omotic as coordinate branches of Afrasian as in my 1986 article under the name 'Cushomotic'..*"

• R. Hetzron (1990) examined merely 7 personal pronoun isoglosses (among the 1st sg. independent nominative, prefix-conjugations, 1st and 2nd sg. subject and oblique pronouns), in Afro-Asiatic (*sine* Omotic) trying to demonstrate his model of multiple dialectal variations in the proto-language, alternatively to the usual linguistic family-tree and the wave theories, which is certainly a welcome and otherwise useful approach, but can hardly be regarded here as representative even in the domain of personal pronouns in general.[30] In the results of his small research, "*The criterion of Sg.1. Subject would unite Egyptian, Berber and Semitic on the one hand, and Semitic and Cushitic on the other, thus Semitic straddling on both sides, with Chadic abstaining. The Sg.1. Oblique forms bring Semitic and Chadic together. The Sg.2m. Oblique forms continue along the same line: Semitic with Chadic on the one hand, and Semitic with Cushitic, leaving Semitic again in the middle, with Egyptian and Berber remaining noncommittal. ... Sg.2f., on the other hand, would put Berber, Egyptian and Chadic together, and now it is Chadic that would exhibit dual allegiance by attaching itself to the group formed by Egyptian, Semitic and Cushitic, as well.*" Henceforth, naturally and correctly, Hetzron refrained from passing any general, far-reaching judgement on the Afro-Asiatic subdivisions from that limited, insufficient number of isoglosses: "*contradictory isoglosses ... would all naturally lead to the conclusion these are not useful isoglosses for subclassification. They are survivals of*

---

[30] Number of shared isoglosses of of the 7 (number of positive presence of the searched criteria) in Sem.-Eg.: 2, Sem.-Brb.: 1, Eg.-Brb.: 2, Sem.-Cu.: 3 (!), Eg.-Cu.: 1, Brb.-Cu.: 0, Sem.-Ch.: 3 (!), Eg.-Ch.: 2, Brb.-Ch.: 1, which can only demonstrate the relatively better preservation of AA *√*'n* (1st sg. subject) in Sem. + Cu., AA **ku* (2nd sg. masc. oblique) in Sem. + Cu., AA **ka* (2nd sg. masc. oblique) in Sem. + Ch., AA **ki* (2nd sg. fem. oblique) in Sem. + Cu. + Ch. No more.

either dialectal ... or free variation within the same dialect of proto-Afroasiatic and they happened to survive in this rather random pattern." But, to my mind, the very fact that he realized it – just this is perhaps the most important point of his paper and I am going to take up this idea below.

- M. L. Bender (1997, 21-22, §3), in his famous "Upside-Down" paper, out of the numerous Afro-Asiatic isomorphs proposed before in the older literature (Benfey, Barton, Meinhof, Crum, Vycichl, Cohen, Greenberg, Applegate, Diakonoff), isolated in fact just a few: "*Three of the proposed isomorphs are of such fundamental nature and distributions that they serve to set off what I think are the three major families of the Afrasian phylum.*" Namely, these are: **(1)** dominance of triliteral verbal roots and presence of root consonant co-occurrence restrictions (Sem.: +, Eg.: +, Brb.: +, Cu.: +/–, Om.: –, Ch.: +/–, Ch.: –), **(2)** both prefix and suffix conjugation (Sem.: +, Eg.: –, Brb.: +, Cu.: +/–, Om.: –, Ch.: –), **(3)** broken nominal plural with *-*a*- (Sem.: +, Eg.: +,[31] Brb.: +, Cu.: +, Om.: –, Ch.: +/–[32]). One can agree with Bender's conclusion (op. cit., p. 22, chart 1), drawn from these data, that Omotic and Chadic are the oldest *separata* from the core he labelled now as Central = Egyptian + Macro-Cushitic (Berber, Semitic, Cushitic). How decisive are just these three grammatical isomorphs, I will discuss below. Let alone that the few lexical isoglosses he quoted (op. cit., Chart 2-3, pp. 26-27: 4 for Afro-Asiatic, 6 for Central) are all too scanty to be used for drawing any outlines of grouping, which is why Bender's (op. cit., p. 25) optimism, that "*in Chart 3, ... several possible isoglosses ... seem to support the classification of Chart 1,*" I cannot share. Moreover, using the syntax (op. cit., pp. 21-25, §3) as a reliable support (equipotential to isomorphs or to careful analysis of the lexicon) in any genetic grouping is once again vain as Bender himself rightly admitted: "*I must note a reminder: syntax is more easily transformed than one might think.*" On the other hand, "*phonetics is not much touched on here*" by Bender (op. cit., p. 27), whose strikingly simplified note is hardly correct: "*far from being a model of *Semitic in phonology and grammar, Arabic (and the Northern languages) are very innovative.*" Not at all, I am afraid – at least, as far as the Arabic vowel and consonantal systems are concerned: these have retained the inherited distinctions of the supposed Proto-Semitic model almost to the maximum, as is well-known in comparative Semitic studies (cf., e.g., most recently Kogan 2011, 55). Bender (op. cit., p. 28-29, §7) then went one step further even generalizing: "*We must stop thinking of Afrasian as being a 'watering-down' of Semitic or Classical Arabic. In fact, Semitic may be the youngest and most innovative branch of Afrasian and Arabic the youngest and most innovative Semitic language. In turn, Macro-Cushitic ... is the innovative part of Afrasian.*" Semitic may well indeed be **one of** the youngest branches (disintegrated in the 4th mill. BC the latest) of Afro-Asiatic, but certainly **not the youngest**, this being evidently Berber, the most coherent branch (being an integral unit until the middle of the 2nd mill. BC at the latest).[33] He is mistaken, however, also in identifying Semitic as the most innovative branch: regarding Afro-Asiatic historical phonology, Semitic consonantism (preceded only by that of South Cushitic) is the second most conservative in the whole macrofamily, as I have proved most recently (Takács 2013, 141-142), whereas regarding Semitic morphology, Bender failed to demonstrate (in either case, by the way) what criteria he regarded as innovative vs. conservative and what the underlying scores were of those (examined?) isoglosses.

- I. M. Diakonoff (1998, 216-217) considered the grammatical structure of Semitic, Berber and Bedawye (Beja) as "obviously close" enough to be classified in an "East-West Afrasian" (EWAA) family, whose "*distinctive feature is the prefixally conjugated verb,*" whereas he refrained from placing the rest of Cushitic in this model: "*The same grammatical isoglosses are somewhat more feebly felt between Semitic and (the other?) Kushitic [sic: K-] languages. They practically disappear between the Semitic and Omotic languages*

---

[31] Bender set here – with the remark "*Coptic, the last stage of Egyptian, has a trace of no. 3.*" But in fact, there are a number of traces of it in Coptic, which speaks for a regular presence of broken pl. in Egyptian.

[32] Bender (op. cit., p. 22, chart 1): "*Not all members of Chadic are positive on no. 3,*" i.e., the pl. forms with *-a- ablaut.

[33] According A. Ju. Militatev's (1991, 153-154; 2000, 216) glottochronological calculations, the Common Libyan unity existed until the last third of the 2nd mill. (around 1200) BC, from which the Guanche sub-branch separated not later than 3000 BC. Without relying upon any glottochronological method, only some archaeological evidence, P. Behrens (1984-5), in turn, assumed nomadic Proto-Berbers to have left the Afro-Asiatic community around 6000 BC and occupied the subpluvial Central Sahara around 5000 BC, which would have to be confronted with the linguistic evidence.

... which actually may not be Afrasian at all ... (However ... lexical isoglosses with different Afrasian languages are present in Omotic in a not inconsiderable number.)" (op. cit., p. 216). Diakonoff imagined the Cushitic homeland south of the Proto-Bedawye tribes (Sinai along the shores of the Gulf of Suez) "*and further to the south along the tributaries of the Upper Nile*" – that is, he thus figured, nevertheless a kind of some close connection between "East-West Afrasian" and the rest of the Cushitic sub-branches. On the other hand, "*the structural (grammatical) isoglosses can rather be established between Egyptian and the Chadic languages*," which he classified as "North-South Afrasian" (NSAA) with a homeland in the el-Kab culture.

- R. Hayward (2000, 87-95, §4.3), before surveying some selected evidence for the common ancestry of the 6 Afro-Asiatic branches, rightly stated that "*it is generally agreed that shared morphology is the surest proof of genetic relatedness*," although his reasoning, that "*phonemes ... are all too prone to areal influences. Lexicon ... is always open to infiltration by borrowing*" (op. cit., p. 87), is by far not overall valid, since these interferences can be filtered by a careful research. Inherited nature of phonemic systems and lexical items, filtered from possible areal influence, **can** nevertheless be carefully established and be exploited for the purpose of collecting isoglosses of genetic grouping. The segments of comparative morphology he regarded as certain token of genetic relationship (§4.3.1: personal pronouns, §4.3.2: case markers, §4.3.3: conjugational features, §4.3.4: plural formatives, §4.3.5.1: verb derivation, §4.3.5.2: case markers, §4.3.6: lexicon and phonology) are, in my view, not always necessarily that useful as grouping criteria. Hayward carefully examined a lot. However, it did not led him to establishing isoglosses, which I try to sum up here: (1) "*As in most other matters, Omotic languages show less agreement in pronominal forms*"; (2) beside the possessive and object pronouns (called by Diakonoff 1988, 70-78 "dependent"; Newman 1980, 15: "non-subject"; Hetzron 1990, 586: "oblique") used in the entire phylum, another "independent" set of pronouns is known with the exception of Omotic and Chadic; (3) the same case system (with clear formal identity) has been pointed out by H.-J. Sasse in Semitic, Berber, and Cushitic, while no obvious traces thereof appear in Egyptian and Chadic, but some isolated reflexes in Omotic are present (of nom. *-*u* in Dizoid and Kefoid = Gonga, gen. *-*i* in Ometo, Gamo, Koyra, Yemsa, Gonga);[34] (4) prefix-conjugation attested in Semitic (both pf./impf. in Akkadian, as impf. in its modern languages), Berber, some Cushitic languages (e.g., Arbore, as archaism with certain verbs), and very slightly retained in Omotic (Yemsa), but absent in Egyptian and Chadic; (5) the stative conjugation known is in Semitic (Akkadian stative), Egyptian (labelled pseudoparticiple), Berber (Kabyle qualitative pf.), while its attestation in the Cushitic stative (Banti) has been queried (Hetzron) and the Chadic evidence from Mubi (Diakonoff) also seems irrelevant; (6) of the two features (6.1: internal ablaut with *-*a*-, 6.2: medial consonant gemination) of the Common Afro-Asiatic present stem (Greenberg 1952) we have both in Semitic (Akkadian and Tigrinya impf.), both in Berber (Twareg habitual), one in Egyptian (impf. part. with redupl.), one in Cushitic (ablaut in Beja, Afar, Arbore), both in Chadic (Migama, elsewhere only the ablaut: Ron, Mubi), both in Omotic (Ari impf. stem redupl., Zayse and other Ometo, Yemsa, Shinasha, Ari -*a*/-*ā* impf. stem ending), (7) broken pl. with *-*a*- (Greenberg 1955) present in Semitic, Berber, (Egyptian),[35] Cushitic, and Chadic, but apparently lacking in Omotic; (8) pl. suffix *-*w* (Zaborski 1976) in Semitic (Akkadian -*ū*), Egyptian, Berber, East Cushitic, Chadic (Hausa), but apparently lacking in Omotic; (9) causative/transitivizing stem formative **s*- ~ *-*s* in all 6 branches; (10) verbal roots mostly triconsonantal in Semitic (less dominantly in Egyptian and Berber),[36] but mostly biconsonantal in Cushitic, Omotic, and Chadic; (11) fem. gender marker *-*t* common in Semitic, Egyptian, Berber, Cushitic, and Chadic, but much more weakly attested in Omotic. The outcome is 11 isoglosses shared by Semitic, 9 (or 10?) by Egyptian (1 case more weakly present), 11 by Berber (case more weakly present), 9 by Cushitic, only 6 by Omotic (moreover, out of these, 4 cases are only more weakly present), and 6 by Chadic. As a result, once more we get the impression formulated by other works (above) that the least Afro-Asiatic morphological features are present in Omotic and Chadic (in the latter, just a bit stronger), while

---

[34] The case of Egyptian is dubious as A. Loprieno's ill-founded Egyptian Auslaut vowel reconstructions Cushiticist Hayward readily accepted are not sufficiently well-founded.

[35] Hayward (op. cit., p. 94) omitted Egyptian, where, however, traces of the *-a- pl. ablaut are known from the Coptic evidence.

[36] Egyptian and Berber were not touched upon here by Hayward (op. cit., p. 94).

Cushitic is a later split-off from the rest of the Afro-Asiatic community, the later Northern Afro-Asiatic block (Semitic, Egyptian, Berber), which is evidently the most coherent and long-lasting core that must have diverged substantially later, with the first separation by Egyptian.

• R. Leger (2014, 124) made a couple of rather surprising categorical statements without, however, presenting the necessary linguistic evidence: "*When synchronically comparing the various phyla of the Afrasian stock with each other, we observe that Semitic shows a very low degree of common lexical and grammatical features with respect to the other members. Regarding the other phyla, Ancient Egyptian and Berber share some more features not only with each other, but also with Chadic and Cushitic. Of all the phyla the last two mentioned display the highest percentage of linguistic correspondences.*" But, strangely, he failed to demonstrate any piece of his evidence or to point out what kind of isoglosses he used.

• I am disposed to agree with I. M. Diakonoff's oldest (1965 and 1975) conception of distinguishing between a Northern Afro-Asiatic block (Semitic, Egyptian, Berber) vs. a Southern Afro-Asiatic phylum (Cushitic, Omotic, Chadic) – in spite of M. L. Bender's (1997, 19) short and for me unfounded objection ("*This latter linking now seems implausible.*") – as correct, which has later been approved and argued for by a number of other researchers (Bender 1975 and 1986, Bernal 1980, Ehret 2000, Blench 2006). This dichotomy is – in my view – definitely corroborated by a number of further shared fundamental (super)linguistic features – criteria replying the question "how?" instead of "what?" – such as:

Northern Afro-Asiatic (Semitic, Egyptian, Berber)	**Southern Afro-Asiatic** (Cushitic, Omotic, Chadic)
high linguistic coherence in phonology and lexicon	high internal diversity in lexicon and phonology
diversification started at a relatively late date	early dissolution from the parental language
high mobility and great dispersion (Semitic north-eastwards, Berber westwards from Siwa to Mauritania)	apparently much weaker territorial mobility (except for South Cushitic?)
penetrated by a high degree of apophony	weak apophony, domination of stable root vowels

There are, however, certain controversies with this dichotomy. It is true that the apophonic system attained almost perfection in Semitic, Egyptian, and Berber as innovation. Some of the ancient apophonies inherited from Common Afro-Asiatic though are present also in Cushito-Omotic and Chadic. Egyptian, however, shares a significant number of exclusive lexical isoglosses with Chadic. Moreover, both branches, apparently, never had a prefix conjugation so widespread in Semitic and Berber, but also attested in Cushitic and Omotic to a certain degree. This is why, Egyptian seems to be an exceptional branch within Northern Afro-Asiatic (not as tightly close, morphologically, to Semitic as Berber is) displaying affinities with the southern block, where, in turn, Cushitic seems to be somewhat atypical with its relics of prefix conjugation.

Some conclusions

All in all, within the immense Afro-Asiatic phylum, certain super-branch grouping seems indeed possible, although – as the recent resarch has shown – not in the manner of the old geographical division into Semitic (basically Asia) vs. Hamitic (all the rest in Africa). The material discussed above, in addition, has made it pretty obvious that the southern "block" was presumably rather a much less coherent and less closely related proto-dialectal community than the northern one. Most scholars agree on Omotic as the oldest branch to separate. A bit less of argument speaks also for Chadic this way, which was perhaps the second branch to diverge. Cushitic, in turn, seems to have remained substantially longer with the rest of the proto-community = North Afro-Asiatic: this is what the noteworthy quantity of grammatical isoglosses (almost equal to those in Egyptian) shared with Semito-Berber may be due to, from which Egyptian was the next to diverge.

The synopsis below summarizes the results of diverse authors discussed above as for the subgrouping and the divergence scenario in the prehistory of our immense macrofamily. The numerals stand for the supposed stage of separation from the common phylum in the relative chronology of Afro-Asiatic prehistory. Identical numerals indicate simultaneous divergence, while identical letters membership in a closer block. Capital letters are used if an author was only able to decide about belonging to a certain block/cluster of branches, but not about the chronological order, whereas the numeral + letter carry both information: belonging to a bunch of branches + relative order of divergence from it.

	Semitic	**Egyptian**	**Berber**	**Cushitic**	**Omotic**	**Chadic**
D'jakonov 1965	NAA 2	NAA 1	NAA 2	SAA 2	SAA 2	SAA 1
Bender 1975	4	4	4	3	1	2
D'jakonov 1975	2	2	2	1	1	1 (?)
Bernal 1980	2	2	2	2	1	1
Newman 1980	B	B	A	C	-	A
Diakonoff 1981	A	B	A	A	?	B
Fleming 1983	2B	3C	4B	Bed. 3B, Agaw-ECu. 3A, SCu. 2A	1	4A
Militarev 1984	EAA 3	WAA ?	E/WAA 5	EAA 2	(?) 1	WAA 4
Bender 1986	D	D	D	Bed. B, the rest A	A	C
Diakonoff 1988	2	1	2	2	1 (?)	1
Bender 1997	3	2	3	3	1	1
Diakonoff 1998	EWAA	NSAA	EWAA	Beja: EWAA, the rest also?	non-AA?	NSAA
Ehret 2000	4	4	4	2	1	3
Militarev 2000	C 4	B 2	C 3	A 1	A 1	C 3
Militarev 2004	NAA 4	NAA 5	NAA 6	SAA 1	SAA 2	NAA 3
Blench 2006	3	3	3	2	1[37]	2
Leger 2014[38]	1	2	3	5	?	4
Takács 2016	NAA 5	N/SAA 4	NAA 5	S/NAA 3	SAA 1	SAA 2
	Semitic	Egyptian	Berber	Cushitic	Omotic	Chadic

References

Alemayehu Haile: Omotic and Cushitic Verbal Markers: A Possible Isogloss. M.A. thesis, 1981. Addis Ababa University, Institute of Language Studies. Unpublished MS.

Behrens, P.: Wanderungsbewegungen und Sprache der frühen saharanischen Viehzüchter.= Sprache und Geschichte in Afrika 6 (1984-1985), 135-216.

Bender, M. L.: Omotic: A New Afroasiatic Language Family. Carbondale, Illinois, 1975. Southern Illinois University.

Bender, M. L.: A Possible Cushomotic Isomorph.= Afrikanistische Arbeitspapiere 6 (1986), 149-155.

Bender, M. L.: The Nilo-Saharan Languages: A Comparative Essay. 2nd edition. München, Newcastle, 1996. Lincom Europa.

Bender, M. L.: Upside-Down Afrasian.= Afrikanistische Arbeitspapiere 50 (1997), 19-34.

Bernal, M.: Speculations on Afroasiatic Origins. MS from 1980 for Current Anthropology (quoted by Bender 1997, 33 with the remark: "*did not appear in 1981-5*").

---

[37] Along with Ongota (?) as suggested by Blench *pace* Fleming.

[38] A work specialized on Chadic prehistory, but most unreliable regarding the Afro-Asiatic sub-classification, where the ex-cathedra statements are not based on any original research of the linguistic evidence, which I listed here purely out of the wish of having as full a list as possible.

Blažek, V.: Omotic Lexicon in Afroasiatic Perspective: Body Parts Cognates. MS. Paper presented at the 2nd International Symposium on Cushitic and Omotic Languages (Torino, November 1989). 41 p.

Blažek, V.: Elam: A Bridge between Ancient Near East and Dravidian India? MS. Paper presented at the 3rd World Archaeological Congress, New Delhi, December 1994. 26 p.

Blažek, V.: The Microsystem of Personal Pronouns in Chadic, Compared with Afroasiatic.= Ibriszimow, D.; Leger, R. (eds.): Studia Chadica et Hamitosemitica. Köln, 1995. Rüdiger Köppe Verlag. Pp. 36-57.

Blench, R. M.: Archaeology, Language, and the African Past. Lanham, New York, Toronto, Oxford, 2006. Altamira Press, A Division of Rowman & Littlefield Publishers, Inc.

Cohen, M.: Langues chamito-sémitiques.= Meillet, A. & Cohen, M. (éds.): Les langues du monde. Paris, 1924. Librairie Ancienne Honore Champion. Pp. 81-151.

Cohen, M.: Essai comparatif sur le vocabulaire et la phonétique du chamito-sémitique. Paris, 1947. Librairie Ancienne Honore Champion.

Delafosse, M.: Esquisse générale des langues de l'Afrique et plus particulièrement de l'Afrique française. Paris, 1914. Masson.

D'jakonov, I. M.: Semitohamitskie jazyki. Opyt klassifikacii. Moskva, 1965. Nauka.

Diakonoff, I. M.: Semito-Hamitic Languages. An Essay in Classification. Moscow, 1965. «Nauka» Publishing House, Central Department of Oriental Literature.

D'jakonov, I. M.: Lingvističeskie dannye k istorii drevnejših nositelej afrazijskih jazykov.= Africana. Afrikanskij Étnografičeskij Sbornik 10 (1975), 117-130.

Diakonoff, I. M.: Earliest Semites in Asia. Agriculture and Animal Husbandry According to Linguistic Data (VIIIth-IVth Millennia B.C.).= Altorientalische Forschungen 8 (1981), 23-74.

Diakonoff, I. M.: Afrasian Languages. Moscow, 1988. Nauka.

Diakonoff, I. M.: Long Range Linguistic Relations: Cultural Transmission or Consanguinity? MS. St. Petersburg, 1995. Published in Mother Tongue Newsletter 24 (1995), 34-40.

Diakonoff, I. M.: Some Reflections on the Afrasian Linguistic Macrofamily.= Journal of Near Eastern Studies 55/4 (1996), 293-294.

Diakonoff, I. M.: The Earliest Semitic Society: Linguistic Data.= Journal of Semitic Studies43/2 (1998), 209-219.

Ehret, Ch.: Wer waren die Felsbildkünstler der Sahara?= Almogaren 30 (1999), 77-94.

Ehret, Ch.: 11. Language and History.= Heine, B. & Nurse, D. (eds.): African Languages. An Introduction. Cambridge, 2000. Cambridge University Press. Pp. 272-297.

Ehret, Ch.: Writing African History from Linguistic Evidence.= Philips, J. E. (ed.): Writing African History. Rochester, 2005. Rochester University Press. Pp. 86-111.

Ehret, Ch.: Linguistics and History in Africa. Not dated MS.

Fleming, H. C.: Chadic External Relations.= Wolff, E. & Meyer-Bahlburg, H. (eds.): Studies in Chadic and Afro-Asiatic Linguistics. Hamburg, 1983. Helmut Buske Verlag. Pp. 17-31.

Greenberg, J. H.: The Afro-Asiatic (Hamito-Semitic) Present.= Journal of the American Oriental Society 72 (1952), 1-9.

Greenberg, J. H.: Studies in African linguistic Classification. Branford, Connecticut, 1955. Compass Publishing Company.

Greenberg, J. H.: Internal a-Plurals in Afro-Asiatic (Hamito-Semitic).= Lukas, J. (ed.): Afrikanistische Studien. Berlin, 1955. Akademie-Verlag. Pp. 198-204.

Greenberg, J. H.: The Languages of Africa.= International Journal of American Linguistics 29 (1963).

Hayward, R.: 4. Afroasiatic.= Heine, B. & Nurse, D. (eds.): African Languages. An Introduction. Cambridge, 2000. Cambridge University Press. Pp. 74-98.

Hetzron, R.: The Limits of Cushitic.= Sprache und Geschichte in Afrika 2 (1980), 7-126.

Hetzron, R.: Dialectal variation in proto-Afroasiatic.= Baldi, Ph. (ed.): Linguistic Change and Reconstruction Methodology. Berlin, 1990. Mouton de Gruyter. Pp. 577-597.

Kogan, L. E.: 6. Proto-Semitic Phonetics and Phonology.= Weninger, S. (chief ed.) in collaboration with Kahn, G.; Streck, M. P.; Watson, J. C. E. (eds.): Semitic Languages. An International Handbook. Berlin, Boston, 2011. Mouton de Gruyter. Pp. 54-151.

Lacau, P.: Notes de grammaire: à propos de la grammaire égyptienne de M. Erman.= Recueil de travaux relatifs à la philologie et à l'archéologie égyptiennes et assyriennes 34 (1912), 206-218.

Leger, R.: The 'Urheimat' of the Proto-Afrasian speaking peoples and their early migrations – with specific reference to Chadic speaking groups of the wider Gongola-Benue basin.= Pawlak, N.; Siwierska, E.; Will, I. (eds.): Hausa and Chadic Studies in Honour of Professor Stanisław Piłaszewicz. Warsaw, 2014. Dom Wydawniczy Elipsa. Pp. 122-131.

Militarev, A. Ju.: Sovremennoe sravnitel'no-istoričeskoe afrazijskoe jazykoznanie: čto ono možet dat' istoričeskoj nauke?= Lingvističeskaja rekonstrukcija i drevnejšaja istorija Vostoka. Čast' 3. Moskva, 1984. Nauka. Pp. 3-26.

Militarev, A.Ju.: Shemy razdelenija afrazijskoj sem'i jazykov (po glottohronologii), karty rasprostranenija drevnepis'mennyh i sovremennyh afrazijskih jazykov.= Lingvističeskaja rekonstrukcija i drevnejšaja istorija Vostoka. Čast' 3. Moskva, 1984. Nauka. Pp. 44-50, and shema 2-3.

Militarev, A. Ju.: Livijsko-guančskie jazyki. I. Obščie svedenija.= Solncev, V. M. (ed.): Jazyki Azii i Afriki. IV, kniga 2. Moskva, 1991. Glavnaja Redakcija Vostočnoj Literatury. Pp. 148-162.

Militarev, A. Ju.: Towards the Chronology of Afrasian (Afroasiatic) and Its Daughter Families.= Starostin, S. A. (ed.): Problemy izučenija dal'nego rodstva jazykov an rubeže tret'ego tysjacheletija. Doklady i tezisy naučnoj konferencii (Moskva, 29 maja – 2 ijunja 2000 g.). Moskva, 2000. Rossijskij Gosudarstvennyj Gumanitarnyj Universitet. Pp. 215-217.

Militarev, A. Ju.: The Afrasian Language Tree. MS. Presented at the conference "Problemy izučenija dal'nego rodstva jazykov an rubeže tret'ego tysjacheletija" (Moscow, Rossijskij Gosudarstvennyj Gumanitarnyj Universitet, 29 May – 2 June 2000). 1 p.

Militarev, A. Ju.: Genetic tree of Afrasian (Semito-Hamitic). Moscow, 2004. MS. 1 p.

Newman, P.: The Classification of Chadic within Afroasiatic. Leiden, 1980. Universitaire Pers Leiden.

Rabin, Ch.: Lexicostatistics and the Internal Divisions of Semitic.= Bynon, J.; Bynon, Th. (eds.): Hamito-Semitica. The Hague, 1975. Mouton. Pp. 85-102.

Takács, G.: Omotic Lexicon in its Afro-Asiatic Setting I: Omotic *b- with Dentals, Sibilants, and Velars.= Busetto, Luca (ed., scientific committee: Mauro Tosco, Livia Tonelli, Roberto Sottile): He bitaney laagaa. Dedicato a / Dedicated to Marcello Lamberti. Quaderni di Lingua e Storia 3. Milano, 2011. Qu.A.S.A.R. s.r.l. Pp. 57-74.

Takács, G.: Omotic Lexicon in its Afro-Asiatic Setting II: Omotic *b- with Nasals, *r, *l, and Weak Consonants.= Zuckermann, Gh. (ed.): Burning Issues in Afro-Asiatic Linguistics. Cambridge, 2012. Cambridge Scholars Press. Pp. 161-184.

Takács, G.: Omotic Lexicon in its Afro-Asiatic Setting III: Omotic *p- and *p^h-.= Journal of Language Relationship 8 (2012), 103-116.

Takács, G.: Archaisms and Innovations in the Semitic Consonantal Inventory.= Monferrer-Sala, J. P. and Watson, W. G. (eds.): Archaism and Innovation Archaisms and Innovations in the Semitic Languages. Selected Papers. Series Semitica Antiqua 1. Córdoba, 2013. Oriens Academic – CNERU (Cordoba Near Eastern Research Unit) and DTR (Durham University). Pp. 137-144.

Zaborski, A.: The Semitic External Plural in an Afroasiatic Perspective.= Afroasiatic Linguistics 3/6 (1976), 1-9 (111-119).

Zaborski, A.: Can Omotic be Reclassified as West Cushitic?= Goldenberg, G. (ed.): Ethiopian Studies: Proceedings of the Sixth International Conference, Tel Aviv, April 1980. Rotterdam, Boston, 1986. Balkema. Pp. 525-530.

MOTHER TONGUE
Journal of the Association for the Study of Language in Prehistory • **Issue XX • 2015**
In Memory of Harold Crane Fleming (1926-2015)

The limited evidence of shared innovations in East Cushitic

Paul Black
Charles Darwin University

Abstract: The traditional approach to language classification has long relied on evidence from shared innovations, to the extent that many may not realise how problematic such evidence can be. After first reviewing the issue in general, the present paper point out the limitations of evidence for shared innovations in East Cushitic languages, both in general terms and in the particular case of heavy diffusion between Dullay and Konsoid varieties. It concludes by stressing the need to use all evidence available for subgrouping, both lexicostatistical and any available on shared innovations.

Much of Harold Fleming's career was devoted to the classification of Ethiopian languages and its prehistorical implications, including his very early work that helped establish Omotic as a separate branch of Afroasiatic (Fleming 1969). The linguistic data he gathered was also significant; for example, Amborn, Minker and Sasse (1980: 55) characterised Fleming's (1965) data on Dullay (or Werizoid) dialects as the first great advance in the documentation of the these varieties.

The present paper discusses an issue related to both Fleming's general concerns and in part to Dullay in particular, namely the problem of using putative shared innovations as a basis for subgrouping. After a broad discussion of the issue of shared innovations (in Section 1), it reviews the classification of East Cushitic languages (in 2), points out some problems of establishing or using shared innovations within East Cushitic in general (3) and in the well-known case of diffusion between Dullay and Konsoid varieties (4), and draws a general conclusion (5).

1. The unreliability of shared innovations

There have been two main approaches to the genetic classification or subgrouping of languages, namely the traditional use of shared innovations on the one hand and various lexicostatistics approaches on the other. For a long time many linguists had no faith in the latter, while introductions to comparative historical linguistics often described the use of shared innovations for subgrouping as if it were unproblematic. Perhaps the value of lexicostatistics is now becoming more widely recognised, especially due to the application of more sophisticated computational approaches borrowed from the biological sciences, as exemplified by recent work on the classification of Austronesian (e.g. Gray, Drummond & Greenhill 2009) and Australian (e.g. Bowern & Atkinson 2012) languages. Even so, however, some may still believe that the evidence of shared innovations is somehow better or more reliable. This section present various evidence on why this is not so before later sections go on to consider specific problems in East Cushitic.

Sometimes shared innovations do indeed seem to provide solid evidence for subgrouping, as in the case of the four main branches of Cushitic, for which Ehret (2008) has given an impressive statement of the chains of sound changes (and thus shared innovations) in the prehistory of each branch. At the same time, however, there are two significant problems with the evidence of shared innovations. One is that there is no reason that shared innovation must occur. In Australia, for example, there seems to have been relatively little phonological change in many of the Pama-

Nyungan languages, so that such protoforms as **mara* simply continue unchanged, as *mara* 'hand', in many languages across the continent.

The other problem is that it is possible for similar changes to occur more than once in a group of languages, rather than representing just a single change in a shared protolanguage. Thus Black (2004) has pointed out that even in an area of Australia that is in fact noted for extensive phonological change, namely Cape York Peninsula, there seemed very little evidence of shared innovation that could provide a basis for subgrouping. For example, while many languages have undergone striking changes involving the loss of some or all initial consonants and sometimes the following vowel as well, this cannot represent a single change in some shared protolanguage: it is clear that it must have occurred separately in a number of groups in the Peninsula, as well as in such geographically distant groups as Nganyaywana in New South Wales (for which see Black 2007) and Arandic in central Australia. Even for the Norman Paman group alone, in which most of the varieties underwent such changes, it does not represent a shared innovation because it must have been preceded by certain changes found only in certain subsets of these languages (Black 2004).

There are many other cases throughout the world in which the evidence of shared innovations simply leaves subgrouping unclear. Most famously, after some two hundred years of comparative study, such evidence for subgrouping the highest level branches of Indo-European is at best conflicting, and apparently the extent to which it even supports such well known branches as Greek is also questionable (see Garrett 1999). Within Austronesian, many phonological, morphosyntactic and semantic innovations common amongst Blust's (1990) Central Malayo-Polynesian (CMP) cannot be attributed to a shared protolanguage, but instead appear to be due to diffusion and perhaps 'drift' (Tryon 1995: 34, 36). For Ehret's (1995) study of Afro-Asiatic, evidence from shared innovations is not only quite weak for subgrouping the highest level branches, but even for distinguishing Proto-Cushitic from Proto-Afro-Asiatic (Kortlandt 1996; cf. also Peust 2012).

2. East Cushitic classification

In view of the problems with shared innovations, it should not be surprising that the subgrouping of East Cushitic languages has been most convincingly established through lexicostatistical approaches, with ones by Bender (1971), Black (1974) and Blažek (2010) showing a great deal of consistency. Below is my own classification from Black (1974: 30-31), with modernised names and with the addition of varieties within groups following Blažek (2010):

1. Burji-Sidamo (Black's Highland East Cushitic), including Sidamo and Gedeo, Hadiyya and Kambatta, and Burji
2. Dullay (Black's Werizoid), including Gawwada and Gollango, Harso and Dobese, and Ts'amakko (or Tsamay).
3. Lowland East Cushitic
    - 3.1 Saho-Afar, including Saho and Afar
    - 3.2 Southern Lowland
        - 3.2.1 Somaloid (Black's Baiso-Somaloid), including Somali, Boni, Rendille, Jiddu and Bayso,
        - 3.2.2 Galaboid (Black's Arbore-Dasenech), including Daasanach, Arbore and Elmolo.
        - 3.2.3 Oromoid
            - 3.2.3.1 Oromo, including Wellega and Maca, Borana and Qottu, Harar, Guji, and Orma and Waata.

3.2.3.2 Konsoid, including Dirayta (Black's Gildole) and Mashile, Konso, and Mussiya (Black's Bussa).

Bender's (1971) and Blažek's (2010) classifications differ from the above in two ways. The first is by taking Dullay (group 2) to group with Lowland East Cushitic (3) to form one of two primary divisions of East Cushitic, the other being Burji-Sidamo (1). Bender (1971: 187) actually used the name 'Lowland East Cushitic' to apply to the grouping of 2 with 3, labelling 3 alone 'Nuclear Lowland'. I followed this when I drafted Black (1976), but in completing my thesis (Black 1974: 45) I found I could not accept the grouping of 2 with 3 (and thus could not use 'Lowland East Cushitic' for such a grouping) because the main evidence for it consisted of relatively high lexicostatistical percentages between Dullay and Oromoid alone. Since these could be inflated by borrowing, I took Dullay's percentages with the more distant Saho-Afar and Somaloid to be more representative, and since those varieties scored as high or higher with Burji-Sidamo as with Dullay, the three-way primary division of East Cushitic seemed appropriate. Without better knowledge of Blažek's (2010) approach and data I have no reason to change that view. I see that Tosco (2009: 125) also accepts this three way split of East Cushitic, although he had not earlier (in Tosco 2000).

The other way Bender's (1971) and Blažek's (2010) classifications differ from mine is that they take Galaboid (3.2.2) to form a group with Oromoid (3.2.3), if only weakly. In Blažek (2010) this is based on the difference between average percentages of only 37.7% as against 34.2%. Tosco (2000), on the other hand, found reason to group Galaboid (3.2.2) together with Somaloid (3.2.1), rather than with Oromoid (3.2.3), into an 'Omo-Tana' group.

Blažek's (2010) classification alone also included Yaaku, in Kenya, taking it to be an outlier within East Cushitic, although Blažek (2012) subsequently excluded it from East Cushitic and treated its classification as problematic. Ehret (1974: 86) had actually taken Yaaku to be closely related to Dullay, and this was accepted by Tosco (2000), but certainly the lexicostatistical evidence goes against this. My own attempt to compare 153 Yaaku forms from Heine (1974) with the 168-item East Cushitic wordlists in Black (1974: 292-310) found that it scored from 8% to 18% with other East Cushitic languages. The lowest of these percentages (with Saho-Afar and Burji-Sidamo) are in accord with Blažek's view of Yaaku as being at best an outlier of East Cushitic. The higher percentages could be inflated by borrowing, but at best they would suggest that Yaaku is a fourth branch of East Cushitic, i.e. one no more closely related to Dullay (at 13% with Gawwada) than to any other East Cushitic language (e.g. also 13% with Somali, and from 15% to 18% with Konsoid varieties).

3. Evidence for shared innovations within East Cushitic

My 1974 comparative reconstruction of Proto-Lowland East Cushitic (Black 1974) found little support for the above classification from the evidence of shared innovations. The strongest support was for the Oromoid subgroup (group 3.2.3), where shared innovations could include:

> the development of *s after *i and *y into *š, the merger of *t with *d and *k with *g in certain environments, the development of the alternation of i-epenthesis, and two more weakly supported developments... A similar palatalization of *s is also found however in Somaloid, and there are some indications that voiced and voiceless stops perhaps merged in similar environments in some of the Arbore-Dasenech [i.e. Galaboid, 3.2.2] languages. (Black 1974: 290).

East Cushitic comparative reconstruction was advanced considerably through the work of Sasse (1979) and Ehret (1987, 1991), but this also does not seem to have produced sufficient evidence of shared innovations to establish a classification of East Cushitic languages on that basis alone. While the evidence for shared innovations is not entirely insignificant, its significance is in the way it supports the lexicostatistically based classification. Thus Ehret (1991: 213) notes that the Lowland East Cushitic grouping (group 3) is now supported by a number of shared innovations, and that Southern Lowland (3.2) 'finds solid support in the sound change histories of PEC *š and *x'.

The reason such shared innovations alone provide little basis for subgrouping is because they are selective: other shared similarities are simply ignored when they do not support the otherwise established subgrouping. As one example, one of Ehret's (1991: 213, 238) shared innovations for Lowland East Cushitic (LEC, group 3) is the development of Proto-East Cushitic (PEC) *g' to Proto-LEC *g, but exactly the same change is found in Burji-Sidamo (1), and yet it is not taken as evidence for subgrouping the latter together with LEC. As another, PEC *š apparently became *s* independently in Afar, Arbore, and Oromoid, as well as in some environments in Somali, and also in some Burji-Sidamo varieties (Ehret 1991: 214). As a third, PEC *c appears to have become *s* independently in Afar, Arbore, and Yaaku, as well as in some environments in Oromo and in some Burji-Sidamo varieties (Ehret 1991: 214).

For a more extended example, consider the reflexes of PEC *z (Ehret 1991:214). My thesis (Black 1974) did not reconstruct *z for Proto-Lowland East Cushitic because its reflexes were distinct from those for *d only in the relatively poorly attested Galaboid languages, and it was not clear if those reflexes (which seemed to include Arbore *z* and *y*, Daasanach *d, z* and *y*, and Elmolo semivowel or vowel length) might simply be phonologically conditioned. Within East Cushitic more generally it now seems quite clear that that *d and *z were originally distinct, although they subsequently merged to become *d in the ancestors of Saho-Afar, Somaloid, and Oromoid, as well as some Burji-Sidamo varieties (specifically Sidamo, Darasa, Hadiyya and Burji; see Leslau 1980). Aside from in Galaboid, as noted above, *z remained distinct from *d as a fricative *z* or *s* only outside of Lowland East Cushitic, namely in Dullay, Yaaku and the remaining Burji-Sidamo varieties (Ehret 1991: 214; Leslau 1980).

A fricative *z becoming a stop *d does not seem an especially common sort of change, although if the former were actually an affricate *dz, as suggested by some early Arbore transcriptions (e.g. *sedze* or *sezira* for 'three' in Linton, Kaley and Coolidge n.d.), then it is not difficult to imagine. In any case, in view of the classification given in Section 2 above, the merger of *z with *d must have happened at least four separate times, in the prehistories of Saho-Afar, Somaloid, and Oromoid, as well as one or more times in the prehistory of the Burji-Sidamo languages. To take the merger of *z and *d to be a single innovation in a shared protolanguage for these varieties would go against both the lexicostatistical evidence for subgrouping (in 2) and the evidence of some other putative shared innovations, such as those Ehret (1991: 213) took to support the Lowland East Cushitic and Southern Lowland groupings.

In view of such contradictory sets of similarities I doubt that consideration of possible shared innovations alone could provide a convincing basis for subgrouping East Cushitic languages. This becomes all the more apparent when one considers the many similarities between Dullay and Konsoid varieties, as will now be discussed.

4. The special case of Dullay and Konsoid

Dullay and Konsoid varieties share many similarities, most strikingly including the loss of a distinction between voiced and voiceless stops found in most other Ethiopian languages. I pointed out such phonological and lexical similarities in Black (1976), while Sasse (1986) developed this further, also noting a number of grammatical similarities in a somewhat broader 'Sagan language area'. The situation has also been discussed by Amborn, Minker and Sasse (1980: 59-63) and Tosco (2009: 128-130). In view of the similarities, it is perhaps not surprising that Grimes (1988) took both groups to be members of an Oromoid Lowland East-Cushitic group along with Oromo, and that some have apparently even classified Dullay within the Konsoid group (as noted by Girard 2002: 3). However, as discussed in Section 2, lexicostatistical evidence has consistently found Dullay and Konsoid to be among the most distantly related pairs of groups within East Cushitic.

The attestation of Dullay and Konsoid varieties has improved considerably since my work in the 1970s. This is especially so for Dullay: a major work by Amborn, Minker and Sasse (1980) focused largely on the Harso, Dobase and Gollango varieties, while Savà's (2005) described the more distinctive Ts'amakko dialect. In addition, Tosco has produced a number of papers on Gawwada, and promises to produce a grammar and a dictionary (for details see Tosco n.d.). In addition, a paper by Girard (2002) provides a lexical and phonological comparison of data from fifteen Dullay varieties that tends to confirm they are connected in a network of mutual intelligibility, so they might be considered a single language despite notable dialectal variation.

For Konsoid my manuscript descriptions of Konso (Black 1973a, Black and Otto 1973) and Dirayta (my Gidole, Black 1973b) are surely being surpassed by more recent studies, but many of these also remain unpublished. References can be found in two recent works which are at least available from the internet, namely a grammar of Konso by Ongaye Oda Orkaydo (2013) and a study of Dirayta (or Diraytata) by Wondwosen (2006). While Konso and Dirayta themselves are quite different and surely not mutually intelligible, they may also be connected in a chain of mutual intelligibility by such intermediate varieties as Mashile; see Black (1992).

As noted above, a striking characteristic of the phonologies of both Dullay and Konsoid varieties is that all except the Ts'amakko variety of Dullay have lost an earlier contrast between the Proto-East Cushitic (PEC) voiced and voiceless stops. As shown in Table 1, this contrast was between *d and *t and between *g and *k, with the stop *b having no voiceless counterpart. Where the contrast was lost (i.e. ignoring Ts'amakko), furthermore, the reflexes of voiceless stops varies in a geographically similar way across both groups.

Reflexes of Proto-East Cushitic (PEC) voiced and voiceless stops

PEC	in Dullay varieties				in Konsoid varieties		
	Ts'amakko (Ts)	Gawwada (Ga)	Gollango (Go)	Harso/Dobese (HD)	Konso (Ko)	Mashile (Ma)	Dirayta (Di)
*b	b	p	p	p	p	p	p/f
*d	d	t	t	t	t	t	t
*t	t	t	t	c	t	t	š
*g	g	k	k	k	k	k	k
*k	k	x/h	h	h/x	k/x	x	h

Specifically, whereas PEC *t simply merged with *d to yield *t* in more southern varieties of both groups, in the northernmost Dullay varieties of Harso and Dobese it was palatalised to *c*, while in the northernmost Konsoid varieties (Mussiya as well as Dirayta) it was both palatalised and fricativised to *š*. Thus PEC **tuf-* > Afar (Af), Somali (So), Oromo (Or), Ts, Ga, Go, Ko *tuf-*, but in northern Dullay HD *cuf-* and northern Konsoid Di *šuh-* ‘spit’. (For PEC *d compare PEC **dar‘-* > Or *daar-aa* Ts *dar‘-o*, Ga, Go, HD *tar‘-o*, Ko *tár-a*, Ma *tar’-a*, Di *tárd’-at* ‘ashes’.)

Meanwhile, in all varieties except Konso (and of course Ts’amakko) PEC *k tends to become a fricative *x* in more southern varieties and *h* in more northern ones, as in PEC **kirb-* > Or *sirb-* (noun *sirb-a*), Ts *kibir* (noun *kibir-ko*, pl. *kirb-e*), Ga *xirip-*, Go, HD *hirip-*, Ko *kirp-*, Ma *xirp-*, Di *hirp-* ‘dance’. In Konso *k also became *x*, but only before *o, as in PEC **kool-* > Or *kol-a*, Borana (Bo), *koól-a* Ts *kool-o*, Ko *xool-a*, Go *hóol-o* ‘wing’, HD *hóol-o* ‘feather’. (In the northern Dullay varieties of Harso and Dobese *x* is sometimes heard instead of *h*, but the difference may not be phonemic (Amborn, Minker & Sasse 1980: 73), while in the south *h* is heard instead of *x* in some Gawwada varieties (Tosco 2006: 890). For PEC *g compare **gar‘-* > Or *gar-aa* ‘stomach’, Ts *gara‘-te*, Ga *kar‘-étto*, Go *kar‘-itto*, HD *kara‘-cé*, Ko *kár-itta*, Ma *kar’-a*, Di *karD* ‘belly’.)

Despite the similarities, the changes in the two groups could not be viewed as ‘shared innovations’ in the normal sense. Because the reflexes of *t remain distinct from those of *d in at least Harso/Dobase within Dullay and in Dirayta within Konsoid, it is possible to reconstruct this distinction for the protolanguage of each of the two groups, even if the Ts’amakko data is ignored. The same is true of *k and *g.

While these changes thus cannot represent a single innovation within a common ancestor shared by Dullay and Konsoid, their similarity seems too great to explain as mere coincidence. Even so, I’m at a loss to provide any full explanation of it. The mere merger of voiced and voiceless stops is no problem: if this happened in a Konsoid variety, such as Konso, for example, and then the same people increasingly came to speak a Dullay variety, such as Gawwada, then of course they might also fail to reproduce the distinction between voiced and voiceless stops in the latter. The difficulty is where voiced and voiceless stops have not merged, with the contrast being maintained in some other way.

For example, *g and *k continue as *k* and *x* respectively in Mashile of the Konsoid group and in Gawwada of the Dullay group. But how could this change in a Konsoid variety have promoted a similar change in a Dullay variety, or vice versa? For example, if the change happened first in Mashile, and then many Mashile speakers began speaking Gawwada, they could of course have difficulty reproducing a distinction between *g and *k in the latter, but what would lead them to render the *k as *x*? One is left to wonder about silly scenarios: could speakers of one variety notice that more and more speakers of the language next door are pronouncing *x* where they used to pronounce *k*, and thinking it’s trendy, they decide to do the same in their own language?

The above are not the only phonological similarities. Within Konsoid, for example, the more northern Dirayta and North Mussiya have an ejective *k’* corresponding to implosive g’ in Mashile and South Mussiya and uvular *q* in Konso (Black 1974: 254; Black 1992); e.g. Di *k’eed’-*, Ma *g’eed’-*, Ko *qeed’-* ‘take’. Similarly ejective *k’* is at least more common in northern Dullay varieties, sometimes corresponding to uvular *q* in more southern varieties and an implosive or ejective *q’* in Ts’amakko, as in HD *k’awho*, Ga *qawho*, Ts *q’awko* ‘man, person’. As another sort of similarity, Black (1974: 273, 290-291) noted that earlier word-initial *wa developed into *o* in both Dullay and Konsoid, but this too cannot be considered a shared innovation unless the proposed classification is grossly wrong.

There are also a number of grammatical similarities between Dullay and Konsoid that may represent innovations, though apparently spread by diffusion rather than inherited from a common protolanguage. Some of the more straightforward ones noted by Sasse (1986: 332-334) include the use of pronominal 'selectors' (if not found in Ts'amakko), an existential verb used as copula (if only in the negative in Konso), an inceptive marker *-um-* (again not in Ts'amakko?), a nominal suffix *-aamp/-amp* to denote persons characterised by a permanent quality, doubling of the final consonant of some verbs to form a 'singularative' or 'punctual' (e.g. Konso *ik-* 'drink', *ik-k-* 'take a drink'), and a tense form in *-n-* (apparently a fossilised form of a stative verb). Black (1976: 298) also noted that just such northern Konsoid varieties as Dirayta used a suffix *-m* to form questions, as in the Gollango and Gawwada varieties of Dullay (see Amborn, Minker and Sasse 1980: 125).

5. Conclusion

While this is far from an exhaustive survey of developments within East Cushitic, it should suggest that there is little basis for classifying these languages on the basis of shared innovations alone. While evidence for phonological innovation is ample, unlike in some areas of Australia, there is often little basis for deciding which ones could have occurred in shared protolanguages and thus provide evidence for subgrouping — except, of course, to the extent we already have independent evidence for the classification, such as from lexicostatistics. To cite an extreme example, the fact that earlier *k became *h* in northern varieties of both Dullay and Konsoid surely cannot provide any support for subgrouping those varieties together against the remaining varieties of both groups.

This does not mean that we should ignore possible shared innovations in favour of lexicostatistical evidence alone. While lexicostatistical approaches have an advantage in that they normally do provide some sort of evidence for subgrouping, this evidence may not be precise enough to distinguish some valid groupings, especially at great time depths, where more traditional lexicostatistical approaches tend to become useless. (This is not to deny the value of lexical evidence more generally for establishing even quite remote linguistic relationships; cf. Fleming 2008.) More sophisticated computational approaches and perhaps other possible innovations, such as ones based on identifying reconstructible protoforms, could improve the precision and range of application significantly, but I doubt they will solve all problems.

What this means, of course, is that the comparativist should ideally exploit all evidence available, both from lexicostatistics and from shared innovations. I believe that this is exactly what Ehret (1991: 213) was doing in citing evidence of shared innovations to 'affirm' the distinctness of Lowland East Cushitic and to provide 'solid support' for Southern Lowland. Furthermore, more or less as Bowern (2010: 3845) stresses, such evidence can shed light on areal diffusion as well as on genetic classification: we should not be disappointed when the evidence for subgrouping is problematic, because this may provide insights into such other aspects of historical development.

References

Amborn, Hermann, Gunter Minker & Hans-Jürgen Sasse 1980, *Das Dullay: Materialien zu einer ostkuschitischen Sprachgruppe* (Kölner Beiträge zur Afrikanistik 6), Dietrich Reimer, Berlin. Electronic version found at <https://epub.ub.uni-muenchen.de/6419/1/6419.pdf> on 9 Nov. 2015.

Bender, M. L. 1971. The languages of Ethiopia: A new lexicostatistic classification and some problems of diffusion, *Anthropological Linguistics* 13(5): 165-288.

Black, Paul 1973a, Draft sketch of Konso phonology, morphology, and syntax, typescript manuscript (pp. 50).

Black, Paul 1973b, Gidole dictionary, handwritten manuscript (pp. 136).

Black, Paul & Shakko Otto 1973, Konso dictionary, handwritten manuscript (pp. 223).

Black, Paul 1974, Lowland East Cushitic: Subgrouping and reconstruction, PhD thesis, Yale University.

Black, Paul 1976a, Some linguistic evidence on the origins of the Konsoid peoples, in *Proceedings of the First U.S. Conference on Ethiopian Studies*, eds H. Marcus & J. Hinnant, African Studies Center, Michigan State University, East Lansing MI, pp. 291-302.

Black, Paul 1992, Konsoid: An example of extreme dialectal differentiation, *Jimmon Shakai Kagaku Kenkyuu / Journal of Humanities and Social Sciences* (Waseda University, Tokyo), no. 32, pp. 99-104. Prepublication version available from <http://espace.cdu.edu.au/view/cdu:42523/Black_ 42523.pdf>.

Black, Paul 2004, The failure of the evidence of shared innovations in Cape York Peninsula, in *Australian Languages: Classification and the comparative method*, eds Claire Bowern & Harold Koch (Current issues in linguistic theory 249), Benjamins, Amsterdam, pp. 241-67. doi:10.1075/cilt.249.15bla

Black, Paul 2007, Nganyaywana revisited: Lessons from Terry Crowley's work on New England languages, in *Language description, history and development: Linguistic indulgence in memory of Terry Crowley*, eds. Jeff Siegel, John Lynch & Diana Eades, John Benjamins, Amsterdam, pp. 255-265.

Blažek, Václav 2010, Glottochronological classification of Oromo Dialects, *Lingua Posnaniensis* 52(2): 27-42. Electronic version found at <http:// www.degruyter.com/view/j/linpo.2010.52.issue-2/v10122-010-0011-0/v10122-010-0011-0.xml> on 11 November 2015.

Blažek, Václav 2012, Afroasiatic migrations: Linguistic evidence, Paper presented at a conference on Rethinking Africa's transcontinental continuities in pre- and protohistory, Leiden University, 12-13 April 2012; Electronic version found at <https://www.phil.muni.cz/jazyk/files/ AAmigrationsCORR.pdf> on 30 November 2015.

Blust, Robert A. 1990, Central and Central-Eastern Malayo-Polynesian, paper presented at Conference on Maluku linguistics, University of Hawaii, March 1990.

Bowern, Claire 2010, Historical linguistics in Australia: Trees, networks and their implications, *Philosophical Transactions of the Royal Society B* 365: 3845-3854. doi:10.1098/rstb.2010.0013

Bowern, Claire & Quentin Atkinson 2012 Computational phylogenetics and the internal structure of Pama-Nyungan, *Language* 8(4): 817–845. doi:10.1353/lan.2012.0081

Ehret, Christopher 1974, *Ethiopians and East Africans: The problem of contacts*, Nairobi, East African Publishing House.

Ehret, Christopher 1987, Cushitic reconstruction, *Sprache und Geschichte in Afrika* 8: 7-180

Ehret, Christopher 1991, The consonant inventory of Proto-Eastern Cushitic, *Studies in African Linguistics* 22(3): 211-275. Electronic version found at

<http://sal.research.pdx.edu/PDF/223Ehret.pdf> on 9 Nov. 2015.

Ehret, Christopher 1995, *Reconstructing Proto-Afroasiatic (Proto-Afrasian): Vowels, tone, consonants, and vocabulary*, University of California Press, Berkeley.

Ehret, Christopher 2008, The primary branches of Cushitic: Seriating the diagnostic sound change rules, in *In hot pursuit of language in prehistory: Essays in the four fields of anthropology*, ed. John Bengtson, John Benjamins, Amsterdam, pp. 149-160.

Fleming, Harold C. 1965, The age-grading cultures of East-Africa: An historical inquiry, PhD thesis, University of Pittsburgh.

Fleming, Harold C. 1969, The classification of West Cushitic within Hamito-Semitic, in *Eastern African History*, eds Daniel McCall, Norman Bennett & Jeffrey Butler, Praeger, New York, pp. 3-27.

Fleming, Harold C. 2008, Roots of a fallacy, *Mother Tongue* 13: 35-39.

Garrett, Andrew 1999, A new model of Indo-European subgrouping and dispersal, in *Proceedings of the Twenty-Fifth Annual Meeting of the Berkeley Linguistics Society, February 12-15, 1999*, eds Steve S. Chang, Lily Liaw & Josef Ruppenhofer, Berkeley Linguistics Society, Berkeley, pp. 146-156. doi: 10.3765/bls.v25i1.1180

Girard, Tim 2002, A sociolinguistic survey of the Werizoid dialect chain. SIL International. Electronic document found at <www-01.sil.org/silesr/2002/ 023/SILESR2002-023.pdf> on 11 Nov. 2015.

Gray, R. D., A. J. Drummond & S. J. Greenhill 2009, Language phylogenies reveal expansion pulses and pauses in Pacific settlement, *Science* 323(5913): 479–483. doi:10.1126/science.1166858

Grimes, B. F. 1988, *Ethnologue: Languages of the world*, 11th edn, Summer Institute of Linguistics, Dallas.

Heine, Bernd 1974, Notes on the Yaaku language (Kenya), *Afrika und Übersee* 58: 27-61, 118-139.

Linton, G., R. Kaley & D. Coolidge n.d. (ca. 1964), unpublished lexical data on a number of languages of the Gidole area, gathered while on duty with the US Peace Corps.

Kortlandt, Frederik 1996, Review of Christopher Ehret, *Reconstructing Proto-Afroasiatic (Proto-Afrasian): Vowels, tone, consonants, and vocabulary*, *Journal of African Languages and Linguistics* 17: 183-195. Electronic version found at <https://openaccess.leidenuniv.nl/bitstream/ handle/1887/2882/344_106.pdf?sequence=1> on 13 Dec. 2015.

Leslau, Wolf 1980, Proto-Sidamo *z, *Afrika und Übersee* 63:119-129.

Ongaye Oda Orkaydo 2013, A grammar of Konso, doctoral thesis, University of Leiden. Electronic document found at <https://openaccess.leidenuniv. nl/bitstream/ handle/1887/20681/bookpart.pdf?sequence=25> on 11 November 2015.

Peust, Carsten 2012, On the subgrouping of Afroasiatic, or: How to use an unrooted phylogenetic tree in historical linguistics, *Lingua Aegyptia* 20: 221-251. Electronic document found at <http://www.peust.de/2012_ afroasiatic.pdf> on 4 Jan. 2016.

Sasse, Hans-Jürgen 1979, The consonant phonemes of Proto-East-Cushitic (PEC): a first approximation. *Afroasiatic Linguistics* 7(1): 1-67.

Sasse, Hans-Jürgen 1986, A southwest Ethiopian language area and its cultural background, in *The Fergusonian Impact, vol. 1: From Phonology to Society*, ed. Joshua A. Fishman, Mouton de Gruyter, Berlin, pp. 327–342.

Savà, Graziano 2005, *A grammar of Ts'amakko*, Köppe, Rüdiger, Köln. Electronic document found at <http://www.leidenuniv.nl/archief-wetenschapsagenda/content_docs/Academische_Jaarprijs/a_grammar_of_ tsamakko.pdf> on 12 November 2015.

Tosco, Mauro 2000, Cushitic Overview, *Journal of Ethiopian Studies* 33(2): 87-121.

Tosco, Mauro 2006, The ideophones in Gawwada, in *Proceedings of the XVth International Conference on Ethiopian Studies: Hamburg July 20-25, 2003*, ed. Siegbert Uhlig, Harrassowitz, Wiesbaden, pp. 885-892.

Tosco, Mauro 2009, Loanwords in Gawwada, a Cushitic language of Ethiopia, in Loanwords in the world's languages. A comparative handbook, eds Martin Haspelmath & Uri Tadmor, De Gruyter Mouton, Berlin, pp. 124-141.

[Tosco, Mauro] n.d. Publications, electronic document found at <http://www.maurotosco.net/publications.html> on 4 December 2015.

Wondwosen, Tesfaye Abire 2006, Aspects of Diraytata morphology and syntax: A lexical-functional grammar approach, doctoral thesis, University of Trondheim. Electronic document found at <http://www.diva-portal.se/ smash/get/diva2:124234/FULLTEXT01.pdf> on 5 Dec. 2015.

Tryon, Darrell 1995, Proto-Austronesian and the major Austronesian subgroups, in *The Austronesians: Historical and comparative perspectives*, eds Peter Bellwood & James J. Fox, ANU, Canberra, pp. 19-42.

MOTHER TONGUE
Journal of the Association for the Study of Language in Prehistory • **Issue XX • 2015**
In Memory of Harold Crane Fleming (1926-2015)

Cushitic and Omotic personal pronouns in Afroasiatic perspective

Václav Blažek
Masaryk University

The present study is devoted to Harold Fleming. In the field of Afroasiatic languages he concentrated especially on the Cushitic and Omotic branches; the latter was even his "child." The comparison of the reconstructed pronominal systems of these two branches demonstrates that they represented independent, but certainly related, branches. By the way, the common pronominal system is amongst the strongest arguments for the genealogical relationship of the Afroasiatic languages. On the other hand, such languages as South Omotic (Aroid) disagree with this common pattern, and so their (rare) common lexicon with North Omotic is better explainable as a result of convergence.

The purposes of the present contribution are as follows:
(1) Summarization of all relevant data from Cushitic and Omotic languages.
(2) Summarization of all relevant data from other Afroasiatic branches, i.e. Semitic, Egyptian, Berber and Chadic.
(3) Differentiation between archaisms and innovations in the individual pronominal systems.
(4) Reconstruction of the partial pronominal proto-systems in individual branches, based on their sub-branches or lower groups.
(5) Mutual comparison of the partial pronominal protosystem leading to the gradual reconstruction of the Afroasiatic pronominal protosystem.
(6) Identification of main tendencies in development of the pronominal system of Afroasiatic.

1. Cushitic

1.1. North Cushitic: Beja[1]

		Subject	Object	Possessive[6]	Prefix conjugation[8]
Sg.	1	*ʔani*[2]	m. *-hē-b-a* < **hō-i-* f. *-hē-b-i* < **hō-i-*	*Ø*	*ʔa-*
	2 m.	*bar-ūk*[3]	*-hō-ka*	*-ka*	*ti-...-a*
	2 f.	*bat-ūk*[4]	*-hō-ki*	*-ki*	*ti-...-i*
	3 m.	*bar-ūs*[5]	*-hō-s*	*-s*	*ʔi-*
	3f.	*bat-ūs*[5]			*-ti*
Pl.	1 c.	*hanán, hanín, hinín*	*-hō-n*	*-n*	*ni-*
	2 m.	*barā-k(na)*	*-hō-kna*	*-kna*	*ti-...-na*
	2 f.	*batā-k(na)*			
	3 m.	*barā-s(na)*[5]	*-hō-sna*	*-sna*[7]	*ʔi-...-na*
	3 f.	*batā-s(na)*[5]			

NOTES
1. Reinisch 1893, 157 (Beni Amer).
2. Biš, Hal (Reinisch), Art (Hudson) *ʔane*. Bender 1971, 238 quotes *anū*. Roper 1928, 26 differs the genitive forms in Hadendiwa *ʔan-i-* ~ *ʔūn-i-* for sg. and *ʔān-i-* for pl. - see also Hudson 1976, 130-131.

3. Vycichl 1953, 158-160 connects the element *bar-* with Eg *b:* "soul" < **bir*, cf. Beḍ *biy*, *bī* "member", *e-biyē-h* "er selbst", similarly Eg *ḏs* "self" vs. Arab *ǧuṯṯa* "body". Bechhaus-Gerst 1985, 125-128 derives the **bar-* from the verb *bari* "to have, to possess" and interprets e.g. *bar-ūk* as "deine Habe" or "das, was du hast". Zaborski 1989, 653 notices that *bár* "property" is feminine while f. forms of sg. pronouns are **bart-uk*, **bart-us*.

4. Art *bar-t-ö-k* "thou" f. sg. acc. (Hudson 1976, 112).

5. Biš sg. *bar-ūh* / *bat-ūh*, pl. *barā-hna* / *batā-hna* (Reinisch).

6. Sg.: nom. *-ū-*, acc. *-ō-*; pl.: nom. *-ā-*, acc. *-ē-*.

7. Art *-hina* (Hudson 1976, 111).

8. Zaborski 1975, 13-25.

1.2. Central Cushitic: Agaw

		Subject[1]	Oblique case (possession)[1]	Prefix conjugation (Awngi, Xamta)[8]	Suffix conjugation (prefixes of the auxiliary)[9]
Sg.	1	**an/*än*[2] < **ʔani*[3]/**ʔanu*	**yə- < *yi / *yu*	**ʔa-*	**-a-*
	2 m.	**ənt*[4] < **ʔanti/*ʔantu*	**kʷə- < *ku*	**ti-*	**-ta-*
	2 f.		**kə- < *ki*	**yi-*	
	3 m.	**ŋi < *mi*[5]	**ŋə- < *mi-*[5]	Aw. *ti-*	**-a-*
	3f.	**ŋəti < *mi-ti*[5]			**-ta-*
Pl.	1 c.	**ənn* < **ʔin-* or **ʔun-* + **-na / *-ni / *-nu*[6]	**ən(a)- < *ʔina-*	*ən-...-ir*	**-na-*
	2 c.	**əntən*, **əntän* < **ʔan-* / **ʔin-* + *-tin / -tun*[7]	**ənt(a)-*	*-rĕn* < **-tin*	**-tina-*
	3 c.	**ŋa < *ma-*[5]?	**ŋa- < *ma-*[5]?	*-nú*	**-na-*

NOTES

1. The reconstructions follow Appleyard 1986, 202-211.

2. Sasse 1981, 144 reconstructs **ʔane*.

3. Cf. Aw (Conti Rossini) *anī*, Kunfäl *ané*.

4. Sasse l.c.: **ənt*; Xr *küt*, X *ket(ā)/kit*, Xt *kịt* represent forms of the object case series, cf. Bl acc. *kʷət*.

5. Appleyard 1986, 220 sees hypothetical parallels in the Afar demonstrative element *-má-* and Dahalo *ʔummámu* "they" (rather from **ʔuḏ-mamu-*; see Zaborski 1989, 650), Iraqw *umu* "each, every". Cf. also Chadic: Sura-Gerka **mu* "they", Masa **mu* "he". On the other hand, forms with initial *ŋ-* exist, too: EDng *ŋààr(à)* "he", Bl *ŋa-* "he", *ŋu-* "they". Voigt 1978, 51 connects CCush **ŋ*-forms with Msg *n*-forms of the 3P. Appleyard 1986, 219-220 sees traces of the AA pronoun m. **s̱uwa* in the CCush reflexive pronoun: Bl. Xr *šū*, Falaša *-išoo*.

6. Sasse l.c.: **ʔanän*. The forms with initial *y-* (Bl, Xr, X) are influenced by oblique case pronoun **ye-* "me/my". Comparing the data of other Cush and AA branches, an original proto-form could be **ʔan-ḥinu* > **ʔannu* (SCCush), b) **ʔanVn* (Km, Qw), c) **ʔanin* > **ʔinan* > **ʔinna* (others). .

7. Originally probably **ʔan-tuni*. Xr *küten*, X *ketòu*, Xt *kıtın* represent the forms of the object case series.

8. Zaborski 1975, 123-126.

9. Zaborski 1975, 124-141.

1.3. East Cushitic

		Subject	Object	Possessive[11]	Prefix conj.[14]	Stative[15]	NHEC 2nd conj.[17]
Sg.	1	_*ʔani_[1]	_*yi / *yu_	_*ya/*yi/*yu_[12]	_*ʔa-_	_*-i-yu_[16]	_*-mi/*-mo_
	2 c.	_*ʔati_[2]	_*ku / *ki_[7]	_*ka/*ku/*ki_	_*ta-_	_*-i-tu_	_*-ti/*-to_
	3 m.	_*ʔusuu_[3]	_*(ʔu)su_[8]	_*ʔisa_[3]	_*ya-_	c. _*-a_	c. _*-ʔi_?
	3 f.	_*ʔišii_[3]	_*(ʔi)ši_[8]	_*ʔiš[ay]_[3]	_*ta-_		
Pl.	1 i.	_*(ʔan-)muni_[4]					
	1 e.	_*(ʔan-)ḥinu_[5]	_*na/*ni_[9]_/*nu_	_*(ʔan-/*ʔin-) *na/*ni/*nu_	_*na-_	_*-i-nu_	_*-mi/*-mo/ *-minV_
	2	_*ʔatinV/*ʔatunV_ < _*ʔatuni_[6]	_*kini/ *kun(n)a_[10]	_*kinna_[13]_/ *kuni_	_*ta-...-in_	_*-i-tin_	_*-ta_
	3	_*ʔišinV/*ʔusunV_ < _*ʔišuni_[3]	_*ʔišinV/*ʔusunV_ < _*ʔišuni_[3]	_*ʔišinV/*ʔusunV_ < _*ʔišuni_[3]	_*ya-...-in_	_*-i-n_?	_*-Ø_ or _*-nV_?

NOTES

1. The final vowels of the form _*ʔani_ and the variant _*ʔanu_, known from Sa-Af and Du (cf. also Beḍ _anū_ by Bender), were identified with the noun subject case marker. Analogically, Oromoid object case forms adopted the absolute case suffix: Oromo Tulema _ánā_, _na_, Ko _ána_, Mašile _ana_ (Appleyard 1986, 213). Ar _yé_, El _yesé_, _yéló_, Das _yú_ represent the original object case form, similarly Ya _ìíçeʔ_ < _*ʔa-ki-yi_ with the masculine marker _*-ki-_ used in possessive suffixes.

2. Sa-Af and Du forms have again the final vowel *-u. Ar _ké_, El _kesé_, _kéló_, Das _kúúni_ represent the original object case form. Ya _aáçuk_ > _*ʔa-ki-ku_ (see fn.1).

3. It is not evident if ECush _*s_ is a correct reflex of AA _*š_ (> Sem *_s_ Eg _s/-f_, etc.) and ECush _*š_ is a positional variant (Sasse 1979, 33-35) or vice versa. Any convergence in development is possible here, cf. Br m./f. _isi/iši_, Ts _ūfu/īse_ vs. Eg _(nt)-f/(nt)-s_, Mh _he/se_, Sq _yhe/se_.

4. Only Das preserves the archaic Inclusive _múúni_, but some forms can be derived from the same root, cf. Bo _*une_ < _*wunV_ < _*mun-_ (?), Som Benadir _anun-ka_ < _*ʔan-mun-_? The loss of _*m_ before _*u_ has an analogy e.g. in Boni _ʔu-(w)ud_ "I die" < _*ʔa-mut-_ (Voigt 1987, 330).

5. A hypothetical proto-form _*ʔan-ḥinu_ developed in various ways: a) > > _*ʔanaḥnu_ > _*naḥnu_ > _*nānu_ (Sa-Af, Br) or _*naḥ_ (Re), b) > > _*ʔanḥini_ > _*nḥini or *niḥni_ (Das, cf. Lamberti's transcription of the object case form _nhi_ = Sasse's ~ _ni_; Sid, Ya); c) > > _*ʔaniḥnu_ > _*ʔiniḥnu_ > _*ʔinnu_ or _*ʔinni_ (Som, El, Ar, Ko, Gidole, Du); d) > > _*ʔanuḥin_ > _*nuḥin_ (Oromo).

6. Sid, Ha _kiˀne_ and Du (except Tsamay) _*kunV_ represent forms of the object case series. Perhaps the other forms with initial sibilants belong here, too (Appleyard 1986, 218).

7. Sa-Af, Omo-Tana, Du _*ku_, Oromoid, HECush _*ki_. The original gender distinction is lost.

8. Du _-na-_, cf. W+CChad obj. _*na/*ni_? Oromo _inni_ has been analyzed as _*is_ + subject case ending _*-ni_ (Appleyard 1986, 220).

9. Lamberti 1989 quotes Das _nhi_, cf. ftn.5.

10. Cf. Ts _-hunna-_. Som _idin_ and Das _ˀitíni_ represent forms of the subject case series.

11. See Appleyard 1984, 13.

12. Or _*-ʔya_, cf. Sid _-ʔya_ poss., Kam _-ʔe_ obj., Ya _-ʔi_ poss. suffixes?

13. Cf. Re m./f. _-k/t-inna_.

14. Zaborski 1975, 29-53.

15. Sasse 1981, 140; Banti 1987, 155-156.

16. Sem, Eg and Berb stative endings of the 1P sg. are _-ku_ while ECush has _*-yu_. Is it an analogy corresponding with subject pronouns _*ʔan-ī_ vs. _*ʔan-ʔaku_ or an archaism analyzable on the example of Daseneč possessive _-ču_ < _*-k-yu_? This hypothetical possibility supposes to analyze the ending _*-ku_ in studied branches as masculine marker _*-k-_ + possessive _*-yu_, cf. Eg _-k(w)j_ vs. dependent 1P sg. pronoun _i̓w/wj_ <

**yu*. There is the only hypothetical possibility of reconstructing the archaic pronoun **ʔan-ʔaku* in Cush here, to reconstruct it on the basis of Ik (Nilo-Saharan) *ŋ́k*^{a} "I" (Hetzron 1980, 12), if we accept the borrowing *ŋ́k*^{a}- from (E?)Cush.
17. Dolgopolskij 1972; Zaborski 1975, 101; Voigt 1978, 48; Sim 1988.

1.4. South Cushitic: Iraqwoid (West Rift) & Ma'a

		subject[A]	possessive[B]	verbal endings	Ma'a
Sg.	1	**ʔani*[1], **ʔana*[2]	**-ʔi*[5]	**-Ø*	*ăni*
	2 m.	**ku*	**-ku*	c. **-it*	c. *ări*
	2 f.	**ki*	**-ki*		
	3 m.	c. **ʔina*[3]	c. **-si*	**-i*	c. *na-ʔani*[9]
	3 f.			**-it*	
Pl.	1 c.	**hanti(ra) / *ʔatVn-*[4]	**-ri /*-ti*[6]	**-an*	*nine*
	2 c.	**hunkura*	**-ku-na / *-ki-na*	**-ta*	*kúne*
	3 c.	**ʔinaʔi*	**-ʔi-na*	**-iya[n]*[8]	*kíni*

1.5. Dahalo

		subject	possessive	verbal endings
Sg.	1 c.	*ʔányi*[10]	*ʔi*	*-o*
	2 m.	c. *ʔáaṯa*	*ku*	c. *-Vṯo*
	2 f.		*ki*	
	3 m.	*ʔúḏu*	*-ḏu*[13]	*-i*
	3f.	*ʔíḏi*[11]	*-ḏi*[13]	*-Vṯo*
Pl.	1 c.	*nyányi*	*-ni*	*-Vnu*
	2 c.	*ʔàṯṯa*	*kuná*	*-Vṯen*
	3 m.	*ʔummámu*[12]	c. *ʔinyá*	c. *-eeN*
	3 f.	*ṯá-ʔini*		

NOTES

A. Kiessling 2002, 290.
B. Kiessling 2002, 274.
1. Ir *an(i)*, Gorowa *aní* (Whiteley - see Zaborski 1989, 668).
2. Al, Bur *an(a)*, cf. Asa *-ana* "my" (Ehret 1980, 283).
3. Lamberti 1989 quotes the contracted form *ʔis* "he, she".
4. Ir *aten*, ?Bur *dandire*, Al *danda* (Ehret 1980, 282, 184 differentiates two roots: **ʔata-(an-)* "you" (pl.) with shifted meaning in Iraqw and **nan/*nani* "we").
5. Ir *e*, Bur *ayi*, Al *i*, cf. also Qwd *-ʔe*, Mbugu *-ké*, Dahalo *ʔi* (Ehret 1980, 289).
6. Ir *-ren*, Bur *-or* "our" (Ehret 1980, 284).
7. Ehret 1980, 65.
8. Elderkin 1988, 94-95.
9. Ehret 1980, 291, while Tucker 1967, 23-24 quotes *hu*, for which see Zaborski 1989, 651 supposes a foreign origin, cf. Bantu demonstrative *hu-*.
10. Ehret, Elderkin, Nurse 1989, 20. Damman had recorded *ana/ani* (Dolgopolskij 1973, 211).
11. Ehret 1980, 290. Tucker has recorded *ʔiṯú* (Ehret, Elderkin, Nurse 1989, 21).
12. Zaborski 1989, 650: **ʔuḏ-mamu*.
13. Ehret 1980, 295, 290. Cf. Tucker's record *ʔisuu* "him", *ʔisii* "her" (Ehret, Elderkin, Nurse 1989, 21).

1.6. Cushitic pronominal protosystem

		Subject	Object	Possessive	Prefix conjugation	Stative
Sg.	1	_*ʔan-yi/-yu_	_*yi / *yu_	_*[ʔ]ya/*[ʔ]yi/*[ʔ]yu_	_*ʔa-_	_*-i-yu_
	2	_*ʔan-ti/-tu_	_*ku / *ki_	_*ka/*ku/*ki_	_*ta-_	_*-i-tu_
	3 m.	_*ʔusuu_	_*(ʔu)su_	_*ʔisa_	_*ya-_	c. _*-a_
	3 f.	_*ʔišii_	_*(ʔi)ši_	_*ʔišay_	_*ta-_	
Pl.	1 i.	_*(ʔan-)muni_				
	1 e.	_*(ʔan-)ḥinu_	_*na/*ni/*nu_	_*(ʔan-/*ʔin-)na/*ni/*nu_	_*na-_	_*-i-nu_
	2	_*ʔan-tuni_	_*kini/*kun(n)a_	_*kinna/*kuni_	_*ta-...-in_	_*-i-tin_
	3	_*ʔišuni_[3]	_*ʔišuni_	_*ʔišuni_	_*ya-...-in_	_*-i-n?_

2. Omotic

		Independent personal pronouns			
		North Omotic proper	Dizi	Hozo	Aroid
Sg.	1	_*ta(-ni/-na)_[1]	_yinu_[5]	_na-nga_[10]	_*ʔi(-nta)_[13]
	2 c.	_*ni(-ni/-na)_[1]	_yetu_[6]	_hi-nga_[11]	_*ya(-na)_[14]
	3 m.	_*ʔis(-i/-a)_[2]	_iti_[7], _ižu_		_*nu_[15]
	3 f.	_*ʔis(-a/-u)_[2]	_iži_		_*na_[15]
Pl.	1 in.	_*ni_[3]			
	1 ex.	_*nu(-ni/-na)_[3]	_inu_	_nu-nga_[12]	_*wV(-tV)_[16]
	2 c.	_*ʔantu(-ni/-na)_	_iti_		_*yV(-tV)_[16]
	3 c.	_*ʔusi(-ni/-na)_[2]	_iši_		_*kV(-tV)_[16]

		Verbal affixes		
		North Omotic proper	Dizi	Aroid
Sg.	1 c.	_*-an-_[17] / _*-ay-_[18]	_-no_[26]	_*-it_[29] <_*ʔinta_
	2 c.	_*-atV_[19]	_-to_	_*-ay_ / _*-an_[31] < _*-yan?_
	3 m.	_*-ay-_[20]	_-(G)o_	_*-a[n]_[32]
	3f.	_*-aw-_[21]	_-(G)e_	
Pl.	1 c.	_*-nV_[22]	_-ń-no_[27]	_*-ot_[33] < _*-wVt?_
	2 c.	_*-tV[n]_[23]	_-i-to_[26]	_*-et_[34] / _*-n_[35] < _*-tVn_ or _*-yVnt?_
	3 c.	_*-tV_[24] / _*-nV_[25]	_-i-šo_	_*-ek_[36] / _*-n_[37] < _*-kVn?_

NOTES

1. Bender 1989, 12 reconstructs common the Omotic 1P sg. nom. _*anti_ / acc. _*anta_ and 2P sg. _*ani_ / _*ana_. But it seems to be more helpful to explain these forms as Nilo-Saharan borrowings (Voigt 1978, 44-45). Kf _ane_, _anō_ "I" (Reinisch) and Se _adoš_ "thou" (d'Abbadie) are rather ECush borrowings than archaisms.

2. The forms of 3P with initial _b-_: Koyra m. sg. _bē_, Ye sg. m./f./pl. _baas/bar/baaso_, Kf sg./pl. _bi/bonōsi_, Sinaša sg. m./f./pl. _bī_, _bú/bī_, _bu/bō_, _bo_ are related doubtless with Bnč reflexive stem _ba_. Cf. also Beḍ demonstrative _ba-_ "that" (Reinisch). Kf sg. m./f. _arō/arē_ correspond with Dokka (Conti Rossini) _ārā_.

3. The opposition of inclusive/exclusive is described in Zayse _nu-/ni-_ (Hayward 1990, 266) and Bnč _ni/nu_ (Breeze 1990, 11-12). The proto-language projection is only hypothetically based on comparison with ECush data.

4. Allan 1976, 383-4.

5. Bender 1975, 103: *ìnúu*, Fleming 1990b, 28: *nây*; cf. Shako *i(n)-* "my" (Dolgopolskij 1973, 22), Nao *na* "I" (Bender).

6. Cf. Shako *yɛta*, while Nao *ne* corresponds with the "NOmotic proper" forms.

7. Bender 1975, 103: *ızú*, Hetzron 1988, 110: *isu*. Allan l.c. quotes the object form *izn*.

8. Fleming 1990b, 29: *ina*. Shako *nēta* and Nao *natoknu* represent different forms.

9. Hozo forms after Fleming 1988. Hozo *-ŋga* means "that" according to Bender 1990, 605.

10. Bmb *tiya* (Bender), *tiša*, *ti* (Fleming) correspond with the typical NOmotic proper pronoun **ta-*. Sezo *ha-šɛ* is puzzling.

11. Cf. Bmb *hiiya*, Sezo *hin-še* (Fleming), originally **ki-*? Ganza *ne* (Bender 1990, 604) represents the typical NOmotic "Proper" pronoun.

12. Ganza *mu* "we" can represent an AA archaisms (although Bender 1990, 609 connects it with Komo *amun* "we" e.), cf. Das *múún*i, NHECush 1P pl. verbal ending **-mV(nV)* and numerous Chadic cognates. Bmb *hamilɛ*, *hambile* (Fleming) belong perhaps here too, But Sezo *dol-šɛ* is puzzling.

13. Cf. the Ari unaffixed stem *ʔi*, subject *ʔitá*, possessive *ʔistén* (Hayward 1990, 448), Hamer *i / inta / in-* (Lydall 1976, 414-415). The Dime object form *is-* (Fleming 1990a, 521) and Ari possessive *ʔisten* can correspond with Sem (Akk + Ebl) dative **y[iw]āṣi*, CCush: Qw *yíši*, etc. and HECush: Ha, Kam object form *e(e)s-* - see tab. 5, fn. 25.

14. Cf. Ari *ɑɑ/ɑɑná/ɑɑntén*, Hm *a/ya/an*, Dm *yaa(i)/(y)in-/in-*. Lamberti's transcription of Ari *ha-* allows to reconstruct **hya-*, which suggests Mao (fn. 11). Bender 1989, 6, 13 supposes for this SOmotic pronoun a Nilotic origin. Dm f. *aytu* (Fleming 1990a, 521) is borrowed from ECush or it is an archaism related with Dizoid and other AA forms?

15. *k*-forms are also used: Ari (unaffixed stem) m./f. *kí/kó* vs. subj. *nó(o)/ná(a)*, Hamer *ki/ko* vs. *kisi*, *kidi/kosi*, *kodi*, Dime *kin-/kon-* vs. *nuu/naa*. This pronominal stem can be related with Cush and Chad masculine determiner **ku* (Dolgopolskij 1973, 258-259; Hetzron 1980, 18-21).

16. Pl. forms are evidently influenced by Nilotic, cf. Teso pl.: 1.i./e. *oni/is(y)o*, 2. *yesi*, 3. *kesi*, Nyangton 1. *suwa*, 2. *ezi*, 3. *keci* (Bender 1989, 6, 7, 13).

17. Ye *-aŋ-* (Fleming), plus past *-i/en*, nonpast *-a/una* (Cerulli) - see Hetzron 1988, 112-113.

18. Ometo **-ay-* (Zaborski 1984, 25). Kf pl./impf. *-t/h-e* (Bender 1975, 104).

19. Ye *-at-*, resp. past, *-i/ete*, nonpast *-e/uta*, Wolaita *-te* (Chiomio) - see Zaborski l.c.). Gf *-ay* could originate hypothetically from **-at/i-* (Hetzron 1988, 114). The usual Ometo ending *-a* can represent the original **-at* with loss of the *-t* in final position.

20. Ye *-e*, resp. past *-i/-e*, Om **-e-*, Kf *-t/h-e*.

21. Ye *-o-*, Om **-aw-*.

22. Ye *-ini-* or *-ňi-*, besides past *-(e/i)n*i, nonpast *-a/uni*, Gf *-ino*, Wol *-ana* (Zaborski 1984, 28: Jussive/subjunctive), Kf *-t/h-one*.

23. Ye *-etio*, *-ti-*, past *-(o)ti*, nonpast *-at*i, Gf, Woi *-eta*, (Chiomio) *-ite*, *-eti*, *-etan*, Ku *-ita* (Zaborski 1984, 25-28), Kf *-t/h-ote*.

24. Ye *-(t)e-*, past *-e/ite*, Kf pf. *-t-ete*.

25. Ye *-u/one*, Om **-ona*, **-una*, Ku *-ino* (Zaborski 1984, 25, 27), Kf *-t/m-inao*.

26. Cf. Shako *ın* (Hetzron 1988, 112).

27. Cf. Shako *ın-*.

28. Cf. Shako *ıt-*.

29. Dm -it, -et, Ari *-it*, Ga *-it* (Fleming 1990a, 522-523: Dime; Hayward 1990, 448: Ari; Bender 1989, 7: Ga, Hm).

30. Ari, Ga *-ay*, ? Hm *-a*.

31. Dm *-en*.

32. Ari *-a*, *-e*, Ga *-a*, *-e*, *-iy*. Dm *-en*.

33. Ari *-ɔ(ɔ)t*, Ga *-ot*, Hm *-o*, Dm *-et*.

34. Ari *et*, Ga *-ɛt*, Hm *-e*.

35. Dm *-en*.

36. Ari *-ek*, Ga *-ɛk*, *-ak*.

37. Dm *-en*.

3. Semitic

		Subject series			
		Direct case	Akkadian stative	WSemitic perfect[17]	Imperfect[19]
Sg.	1	_*[ʔa]ku_[1] _*ʔan-āku_ < _*ʔan-ʔaku_[2] _*ʔan-ā_ < _*ʔan-ʔa_[3] _*ʔan-ī_ < ? _*ʔan-[ʔ]yi_[4]	_-āku_[14]	_*-ku_	_*ʔa-_
	2 m.	_*ʔan-ta_[5]	_-āta_[15]	_*-ta_	_*ti-_
	2 f.	_*ʔan-ti_[5]	_-āti_	_*-ti_	_*ti-...-ī_
	3 m.	_*s̱uwa_[6]	_-ū_[16]	_*-a_[16]	_*yi-_
	3f.	_*s̱iya_[6]	_-at_[16]	_*-at_[16]	_*yi-/*ti-_
Pl.	1 c.	_*ḥinna/*ḥanV_[7], _*naḥa_[8] _*(ʔa)niḥna/u_ > _*(ʔa)ḥina/u_[9]	_-ānu_	_*-na_	_*ni-_
	2 m.	_*ʔan-tumu_[10]	_-ātunu_[15]	_*-tumu_[18]	_*ti-...-ū_
	2 f.	_*ʔan-tin(n)a_[11]	_-ātina_	_*-tin(n)a_[18]	_*ti-...-ā/-na_
	3 m.	_*s̱umu_[12]	_-ū_[16]	_-ū_[16]	_*yi-...-ū_
	3 f.	_*s̱in(n)a_[13]	_-ā_[16]	_-ā_[16]	_*yi-/*ti-...-ā/-na_

		Object series			
		Indirect case (Akkadian & Eblaite)		Possessive	
		gen.-acc.: _*-ti_[20]	dat.: _*-si_[25]	gen.-acc.	dat.
Sg.	1 c.	_*y[iw]ā-ti_[21]	_*y[iw]ā-si_	_*-ī, -*ya/*-ni_	_*-a_[26]
	2 m.	_*kuwā-ti_	_*kuwā-si_	_*-ka_	_*-ku_
	2 f.			_*-ki_	_*-ki_
	3 m.	_*s̱uwā-ti_[22]	_*s̱uwā-si_	_*-s̱ū_	_*-s̱ū_
	3f.	_*s̱iyā-ti_[23]	_*s̱iyā-si_	_*-s̱ā/*-s̱ī_	_*-s̱ī_
Pl.	1 c.	_*ni[ʔ]ā-ti_	_*ni[ʔ]ā-si_	_*-na, *-ni, *-nu_[27]	
	2 m.	_*kunū-ti_	_*kunū-si_	_*-kumu_[28]	
	2 f.	_*kinā-ti_	_*kinā-si_	_*-kin(n)a_	
	3 m.	_*s̱unū-ti_[24]	_*s̱unū-si_	_*-s̱umu_[28]	
	3 f.	_*s̱inā-ti_	_*s̱inā-si_	_*-s̱in(n)a_	

NOTES

1. Sq _ho(h)_, Ji _hé_, Mh _hóh_ (Affuso 1977, 252).
2. The different vocalization of final vowel is attested in Tell Amama _anuki_, Ph _ʔnky_, Hbr _ʔanōkī_, Samaritan _anáki_, OAram _ʔnky_ - a result of dissimilation or an influence of the form _*ʔan-ī_ (Barth 1913, 4)?
3. OBab _ana_, Ebl _an-na_; Ugar _ʔan_, Syr _ʔenā_, Arab _ʔanā_ (Yemenite, Hadramaut: m./f. _ʔana/ʔanī_), Sb _ʔn_, Gz _ʔanā_. Barth 1913, 3: _*ʔan-ʔa_.
4. Hbr _ʔănī_, Arab (Syria, Iraq), _ʔanī_. Barth 1913, 4: _*ʔan-ī_ < _*-ya_.
5. The different forms (adopted from the object series) are attested in Modern South Arabian m./f. _*kat/*kit_ > Mh, Hr _hēt/hit_, Sq _het/hit_, Ji _hεt/hit_, and some Ethio-Semitic: Argobba _anka_, Harari _axāx/axāš_, Caha _axa/aša_, etc. < _*ʔanka_ (Affuso 1977, 261).
6. The reconstruction of Sem _*s̱_ - see Djakonov 1965, 26; he reconstructed _*s̱ū(ʔa)/*s̱i(ʔa)_ (l.c. 69, accepted by Dolgopolsky 1989). Djakonov 1965, 222 prefers to reconstruct _*s̱uwa / *s̱iya._
7. Syr _ḥnan_, Arab (CArabia) _ḥinna_, (Algeria) _ḥnā_, etc., Sq _ḥan_, Te _ḥenna_ (Barth 1913, 7).

8. Affuso 1977, 256; Simeone-Senelle 1997, 387: Mh *nḥa*, *nah(ā)*, Ji *nḥa*, Hr *ənḥā*.
9. Akk *nihu*, OAss *nēnu*, Ph *ʔnḥn*, Hbr *(ʔă)naḥnū*, Aram *ʔănaḥnā*, Arab *naḥnu*, Sb *ʔn*, ?Jibbali *inḥan*, Gz *neḥnă*, Ty *neḥna*.
10. The *n*-forms like Akk *attunu*, Ebl *an-da-nu*, Aram *ʔattūn*, Syr *ʔattōn*. Sq *tan* are influenced by f. forms?
11. The geminate *-nn-* is attested in Hbr *ʔattēn(n)ā* and Arab *ʔattuna* with *-u-* adopted from m. form.
12. The *n*-forms like Akk *šunu*, Ebl *su-nu*, Syr *hennōn*, ?Sq *yhen* are influenced by the f. forms?
13. A different initial sibilant seems to be in SArabian: Mh m./f. *hém/sén*, Jibbali *šu/se*, Sq *yhen/sen*. Is it an influence of various following vowels: **s̠u-* vs. **s̠i-* > **ši-*?
14. Dolgopolsky 1984, 68 and 1989 analyzes the Akk pattern characterized by generalization of *-a-* on the example of 1. *šalmāku* "valeo" < *šalim-a* + ^{ʔ}*aku* "valens ego", 2.m. *šalmāta* < **šalim-a* + *ta*, 2.f. *šalmāti* < **šalim-at* + *ti*, etc. The ending *-a* represents the predicative case for m.
15. Cf. nAss sg. *-āka*, pl. *-ākunu* with *-k-* adopted from the object series.
16. Originally gender (m./f.) markers of the predicate (Diakonoff 1988, 92).
17. The WSem pattern **-ku, *-ta/*-ti* for the 1P and 2P sg. has developed in CSem in **-tu, *-ta / *-ti*, while in SSem in **-ku, *-ka/*-ki*.
18. SSem m./f. **kumu/*kinna* > Yemenite Arab *kū/kun*, Mh *-kem/-kann*, Sq *-kin/-kin*, Gz *-kemmū/-ken*, Gafat *-hu*^{w}*m / -h*^{w}*en* (Belova 1988, 29).
19. The vocalization follows Dolgopolsky 1989. The other interpretations see Diakonoff 1988, 80, 84.
20. The pronominal gen./acc. ending *-ti* corresponds to Hbr nota accusativi *ẹ̄t*, *ēt* and the Beḍ accusative marker *-t* (Klingenheben 1951, 84-85). The other parallels see in CCush: Bl acc. 1P *yet*, 2P *k*^{w}*et*, Xt *yịt*, *kịt*, Km *yịt*, *ku* (Appleyard), maybe Sid *yotte* "me". See also tab. 6, fn. 4.
21. The reconstruction is based on the Akk independent possessive *i-i-a-ú-m*, i.e. *jawūm* (Soden 1952, 45).
22. Gen./acc. also Ugar *hwt*, Qtb s_1*w(t)*, Sb *hwt*, Gz *we*^{ʔ}*etū* < **h*^{w}*e*^{ʔ}*etū* < **hu*^{ʔ}*ātū* (Diakonoff 1990, 24).
23. Gen./acc. also Ugar *hyt*, Qtb s_1*yt*, Sb *hyt*, Gz *yəʔətī* < **h*^{y}*eʔetī* < *hiʔātī*.
24. Gen./acc. also Ugar *hmt*, Ph *mt*, Sb *hmt*, Gz ^{ʔ}*emūntū* with **-m-*, which is probably original, cf. ftn. 18.
25. The pronominal dative ending **-s̠i* corresponds to Sem nominal locative-terminative / dative in **-Vs̠/*-s̠V*. The same case marker is known also from the CCush dative: Km *yəšə*, *kušə*, Qw *yíšī*, *kūšī*. Aw *ịyịs*, *kús* (Castellino 1962, 35-36; Appleyard 1986, 203). ECush object form as Ha, Kam *e(e)s*, *ke(e)s* represent probably the same case ending. The other ECush data - see Hetzron 1980, 17.
26. Personal marker of the 1P sg. **ʔa-* of the prefix conjugation has probably the same origin (Barth 1913, 3). Dolgopolsky (p.c.) supposed the oldest dative-orientation for the AA verb conjugated prefixally.
27. All dative plural forms in Akk are extended by the case endings: OBab *-ši(m)*, Ass *-ti*, while ending *-ti* is used in acc. pl. in OBab (Soden 1952, 43).
28. Only Akk and Ebl forms have *-n-* as *f-* forms, cf. fn. 10, 12.

4. Egyptian

		Independent[1]			Suffixed[11]
		Archaic Egyptian[2]	Late Egyptian[2]	Coptic	Archaic Egyptian
Sg.	1	*i͗nk* < **ʔanāku*	*i͗nk* < **ʔanāku*	*anok*, *anak*	*-j* < **-ī*
	2 m.	*ṯwt* < **kuwāti*[3]	*nt-k* < **nijtāka*[7]	*ntok*	*-k* < **-ka*
	2 f.	*ṯmt* < **kimāti*	*nt-ṯ* < **nijtāki*[7]	*nto*	*-ṯ* < **-ki*
	3 m.	*swt* < **suwāti*[3]	*nt-f* < **nijtās*^{w}[8]	*ntof*	*-f* < **-s*^{w}
	3f.	*stt* < **sitāti*	*nt-s* < **nijtāsa*	*ntos*	*-s* < **-sa*
Pl.	1 c.		*i͗nn* < **ʔanānu*[9]	*anon*, *anan*	*-n* < **-na*
	2 c.		*nt-ṯn* < **nijtākun*[10]	*ntōtn*	*-ṯn* < **-kunu*
	3 c.	*nt*[5]*-sn* < **nijtāsun*[6]	*nt-sn* < **nijtāsun*[6]		*-sn* < **-sunu*
			nt-w	*ntow*	
		Dependent		Old Perfect[15] (Pseudoparticiple)	

		Archaic[2]	Late[2]	Archaic[2]	Late[2]
Sg.	1	_ỉw_[12], _wj_< _*yu/*wi?_	_wj_	_-k(j)_[16]	_-kwj_[16]
	2 m.	_kw_ < _*kuwa_	_ṯw_	_-t(j)_	_-tj_
	2 f.	_ṯm_ < _*kima_	_ṯn_	_-t(j)_	_-tj_
	3 m.	_sw_[13] < _*suwa_	_sw_	_-w_[17] / _-j_	_-(w)_[17]
	3f.	_sj_ < _*siya_	_st_[14]	_-tj_	_-tj_
Pl.	1 c.	_n_ < _*na?_	_n_	_-nw_[18]	_-w(j)n_[18]
	2 c.	_ṯn_ < _*kunu_	_ṯn_	_-tjwn_	_-tjwn(j)_
	3 c.	_sn_ < _*sunu_	_st_[14]	m. _-w(j)_[17]	_-(w)_[17]
	3 f.		_-tj_	f. _–tj_	

NOTES

1. The reconstructions follow Satzinger 1987, if other authors are not quoted.
2. The oldest attested forms while l means later forms although sometimes also very old, e.g. _nt-k_ is known already from the Pyramid Texts.
3. Originally the object case forms with exact parallels in Sem (Akk + Ebl), acc. _*kuwāti_, _*s̱uwāti_. Cf. independent forms SArabian m./f. _*kat_ / _*kit_ and CCush: Xr _küt_, _kit_, X _ket(ä)_ / _kit_, Xt _kət_ (Affuso 1977, 263; Diakonoff 1988, 78-79).
4. Diakonoff 1988, 78.
5. The interpretation of _nt_ is ambigous: a) _njt_ "essence, identity, contents" by Gunn and Callender - see Zaborski 1989, 653; b) "presence" by Satzinger 1987; c) _nt_ "person /property" by Vycichl 1954, 368; d) an infinitive of the verb _ỉnw/j_ "to give" by Voigt 1978, 51, 60.
6. Vycichl 1983, 401: m./f. _*ni.t-ā-sunu/-sina_.
7. Vycichl 1983, 146: m./f. _*ni.t-ā-ka/-ki_ "ce qui est à toi".
8. Diakonoff 1988, 72 and 1965, 73; Militarev, Stolbova 1990, 48 suppose a specific development of AA _*š_ in Eg _f_ in final position. This process was probably influenced by labial vocalism (as in ECush): _*-su_ > _*-sʷ_ > _*-hʷ_ > _*-f_.
9. Vycichl 1983, 13: _*ʔanāna_.
10. Vycichl 1983, 147: m./f. _*ni.t-ā-kunu/-kina_.
11. Vycichl 1953, 384.
12. Edel 1955, 76; Affuso 1977, 253.
13. The ending of the verbal adjectives 3P sg.m. _-fj_ can be an adjacent to _sw_ (Edel 1955, 76).
14. Originally neutrum (Edel 1955, 77).
15. Schenkel 1971, 313; Diakonof 1988, 92: the ending _-j_ is probably a predicative copula of deictic origin.
16. Edel 1955, 271; Affuso 1977, 253-254.
17. Diakonoff 1988, 92: originally a masculine marker of the predicate.
18. Edel 1955, 273; Affuso 1977, 258.

5. Berber

		Independent[1]	Indirect object		Direct object
			simple[6]	compound[10]	
Sg.	1	_*ənakkw_	_*ī/y_, _*īy_ < _*īw?_	_*hih-ū_[11] < _*ū/w_	_*ī/y_
	2 m.	_*kayy_[2]	_*ək_, _*īk_	_*-ak_	_*ək_, _*īk_[13]
	2 f.	_*kamm_[3]	_*əm_, _*īm_	_*-am_	_*(ī)kam_
	3 c.	_*əntā_ / _*ənīt_	_*əs_, _*īs_	_*-īt/*-əs_	m. _*(ə)t_, _*īt_[14]
				*-(ī)tat	
Pl.	1 m.	_*ənakkʷanī_[4]	c. _*ī(k)-naγ_[8]	_*-anaγ_	_*hānaγ_[8]
	1 f.	_*ənakkʷanatī_			

	2 m.	_*kawanī_[5]	_*ī(k)-wan_[9]	_*-awan_	_*(ī)k(a)wan_[9]
	2 f.	_*kamatī_	_*ī(k)-mat_	_*-akmat_	_*(ī)k(a)mat_
	3 m.	_*ən(ī)tanī_	_*ī(t)-san_[7]	_*-asan_	_*(ī)tan_[14]
	3 f.	_*ən(ī)t(a)natī_	_*ī(t)-s(a)nat_	_*-as(a)nat_	_*(ī)t(a)nat_

Verbal personal exponents: Pre-Berber >> Proto-Berber

		Pre-Berber[15]		Proto-Berber[15]	
		Imperfect[16]	Perfect		Mixed system
Sg.	1	_*ʔa-_	_*-ku_[17]	*	_*ʔa-...-a_[17]
	2 m.	_*ta-_	_*ta-_	*	_*ta-...-ad/ḍ_
	2 f.	_*ta-_	_*ti-_	*	_*ta-...-ad/ḍ_
	3 m.	_*ya_	_*-(a?)_	*	_*ya-_
	3f.	_*ta-_	_*-at_	_*ta-...-at_	_*ta-_
Pl.	1 c.	_*na-_	_*(-na)_	*	_*na-_
	2 m.	_*ta-_	_*-tumu_	_*ta-...-tam_	_*ta-...-am_
	2 f.	_*ta-_	_*-tum-at_	_*ta...-tamat_	_*ta-...-mat_
	3 m.	_*ya-_	_*-an_	_*ya-...-an_	_*-an_
	3 f.	_*ya-_	_*-nat_	_*ya-...-nat_	_*-nat_

NOTES

1. Prasse 1972, 179.
2. But Auj _ku_, Zng _kuk_ (Aikhenvald 1986, 532).
3. But Zng _kum_ (Aikhenvald 1986, 532).
4. Originally a sg. form extended by plural suffix (Affuso 1977, 258).
5. Qabyle _kunwi_, Shawya, Figig _kenwi_, etc. may represent older forms than Tuareg _kawani-ḍ_ (which is a basis of Prasse's reconstruction), Judging from external parallels, Zng m./f. _netni/netna_ are influenced by 3p pl. form _nutni/nutna_, although it is attractive to see here an original t-form of the 2P pl. pronoun corresponding with Sem m./f. _*ʔan-tumu_, _*-tunu_ / _*ʔan-tin(n)a_.
6. Prasse 1972, 164.
7. ENum sg./pl. _-s/-sn_ (Rössler 1976, 432).
8. Mg, Zgugu _aneh_ and Iz, Nd, etc. _ah_ can preserve the original _*ḥ_ which would be replaced by _γ_ in other dialects; cf. also the forms of enclitic direct object: Iz, Zemmur, Mg, Nd, etc. _aḥ_ (Aikhenvald 1986, 531). This hypothesis allows one to reconstruct a presence of the original AA pronoun of the 1P pl. _*ʔan-ḥVnV_ also in Berber.
9. There occur some forms with _-m-_: Wargla _akum_, Righ, Rif, Auj _kum_, similarly direct object enclitics like Auj _kima_, Siwa _kim_, Jebel Nefusa _kamen_ (Aikhenvald 1986, 535, 534). An influence of the feminine _-m-_ forms or the result of the change _*-nw-_ > _-m(m)-/-nn_ (see Brugnatelli 1988, 353, 350)? This hypothesis explains the forms of independent 2P pl. pronoun as Nd, Ntifa, Semlal, etc. _kun(n)i_, Salaḥ, Rif _kenni_, etc. vs. Auj _kəmmim_ (Aikhenvald 1986, 533).
10. Prasse 1972, 170.
11. Ghadames, Auj _-inuk_ are influenced by the independent form _*ənakk_^{w} (Aikhenvald 1986, 530-531)?
12. Prasse 1972, 173.
13. ENum -k (Rössler 1976, 441-442).
14. Cf. ENum sg./pl. _-t/-tn_ (Rössler 1976, 432), Guanche (Tenerife) _achi-t_ "lives he; may he live" (Aikhenvald 1986, 538).
15. Prasse 1973, 16.
16. ENum sg. 1. Ø-, 2. _t-_, 3.m./f. _y-/t-_, pl. 1. _n-_, 3. Ø-…_-n_ (Rössler 1976, 440).
17. Vycichl 1952, 75-76 explains _-γ_ in most of Berber languages and dialects on the basis of influence of originally labial vocalism, cf. Ighezran _-oγ_ < _*ěγ_^{w}. Zng perhaps conserves the original _-k_ in ending _-ěk_ (Vycichl, 1.c.).

6. Chadic

Limited space does not allow me to present the personal pronouns in all described Chadic languages. For this reason partial reconstructions of the pronominal microsystems in the individual Chadic groups are used, based on the following sources:

I. HAUSA-GWANDARA: Rössler 1950; Matsushita 1973; Burquest 1986.
II. SURA-GERKA: Jungraithmayr 1964, 1966a,b; Kraft 1974;
III. RON: Jungraithmayr 1970.
IV. BOLE-TANGALE: Kraft 1974; Schuh 1978, 1984.
V. NORTHERN BAUCHI: Jungraithmayr 1967; Skinner (undated ms.).
VI. SOUTHERN BAUCHI: Jungraithmayr 1965b; Kraft 1974; Shimizu 1978; Jaggar 1988.
VII. BADE-NGIZIM: Kraft 1974; Schuh 1981.
VIII. TERA: Newman 1964; Kraft 1974.
IX. BURA-MARGI: Hoffmann 1955; Kraft 1974.
X. HIGI: Wente-Lukas 1974; Kraft 1974.
XI. BATA: Mouchet 1950; Kraft 1974.
XII. LAMANG: Lukas 1965; Wolff 1983.
XIII. MANDARA: Lukas 1937; Mouchet 1950; Kraft 1974.
XIV. SUKUR: No accessible data.
XV. MAFA-MOFU: Mouchet 1953; Lukas 1970; Barreteau 1988.
XVI. DABA: Mouchet 1950; Burquest 1986.
XVII. GIDAR: Mouchet 1950.
XVIII. KOTOKO: Lukas 1936, 1939; Lebeuf 1942; Lukas & Meyer-Bahlburg 1980; Tourneux 1991.
XIX. MUSGU: Lukas 1941; Tourneux 1978; Tourneux, Seignobos & Lafarge 1986.
XX. MASA: Mouchet 1950; Caïtucoli 1983.
XXI. KWANG-KERA: second-hand data quoted after Mukarovsky 1983, 1987; Dolgopolsky 1987.
XXII. LAI: Caprile 1978; Burquest 1986.
XXIII. SUMRAY: Lukas 1937; Caprile 1971; Jungraithmayr 1978.
XXIV. SOKORO: Lukas 1937.
XXV. DANGLA-MIGAMA: second-hand data quoted after Dolgopolsky 1987; Mukarovsky 1987.
XXVI. MOKILKO: Lukas 1977.
XXVII. MUBI-TORAM: Lukas 1937; Jungraithmayr 1961; Alio 1986.
XXVIII. KUJARKE: Doornbos 1983.

The pronominal system common to most Chadic languages can be reconstructed in two sets, frequently merging. Set A represents the independent forms, and Set B is reconstructed on the basis of the object and possessive forms:

6.1.1. Chadic 1P sg.

Nr.	Group	Independent	Object	Possessive
I.	Hausa	_*ni-i_	_*ni_	_*-a / *-wa_
II.	Sura-Gerka	_*-ʔan_	_*-ʔan_	_*(-)na_
III.	Ron	_*yin < *yi-ʔan-ʔiʔ_	s. _*ʔi / *ni_	_*-ʔin_
IV.	Bole-Tangale	_*na-a_	_*na_	_*na-u_
V.	Northern Bauchi	_*muna / *mina_	_*(mu-)ni/a_	_*mu(n) / *-anu/i_
VI.	Southern Bauchi	_*ʔami_	_*muni_	_*gi-ni_
VII.	Bade-Ngizim	_*ʔiyu_	_*ʔiyu_	_*-aa_
VIII.	Tera	_*[ʔi]ŋa/i/u_	_*ŋa / *ŋi_	_*-ŋa/*-ŋiʔ/*-na_, Pi. _-ma_

IX.	Bura-Margi	*ʔiya	*[nt-]ʔaʔ, Ngw. ni	*-[nt-]ʔa/*-na; Mrg. -mi, WMrg. -wɛy, Ki. ya
X.	Higi	*ʔyina	*n-ʔya	*-n-ʔya
XI.	Bata	*Hun[i]	*-i / *-ya	*-Vy / *-ya
XII.	Lamang	*ʔiyu	s. *-yu; o. *-iy	Lm. -ḍa, Hdk. i
XIII.	Mandara	*-[ʔi]ya	*K-wa / *-nV	*-na, Nak. ga, Wnd. -ru-wɛ
XV.	Mafa-Mofu	*[ʔi-]ya / *na(y)		*-g-w / *ʔa
XVI.	Daba	*Kata	*-Ka / *-Vk	*ḍa < *[nt-]ʔaʔ
XVII.	Gidar	na		wa-
XVIII.	Kotoko	*nta-wu	s.*[ʔ]wu/*na; o. *-na/*-ni	*-wu
XIX.	Musgu	*ntanu / *mutan	s. *mV-; o. *-u/*-a, *ana	*-u / *-(y)a
XX.	Masa	*n-anu	*-an, Bnn. ni	*-anu
XXI.	Kwang-Kera	*(-)Vn	*-Vn	*-(y)n
XXII.	Lai	*Vnkuʔ	*-nk	*-Vn-Vnk
XXIII.	Sumrai	*Vn-dī	*an	*-Vn
XXIV.	Sokoro	So. na, Ba. inu/unu	So. -no	So. -u
XXV.	Dangla-Migama	*naa-	EDng. s. noo; o. -in, -no	
XXVI.	Mokilko	nùunó, núŋ	dir. nì, indir. -ó[o]	-o < *-wV or *-Vw?
XXVII.	Mubi	*ʔin-tV, Jg. nóò	Mb. n, Jg. dir. i, indir. -in	Mb. -i, -yo, joo; Bi. -ru/-du
XXVIII.	Kujarke	annu		

6.1.2. Chadic 1P pl.

	inclusive or common			exclusive		
Nr.	Independent	Object	Possessive	Independent	Object	Possessive
I.	*mu-u	*mu	*-mu			
II.	*(-)muni	*mun	*-[mu]nuʔ			
III.	*g-yen	s. *g-ya	*-i-g-yan	*nin, Sha níh	s. *na / *ni	*-a/i-nin
IV.	*muni	*mu[ni]	*mu			
V.	*mana, *mi	*ma/i/u	*ma/i			
VI.	*mun	*mi/*mu, Ge. ni < *m[u]ni	*gu-mi(N)	*miya(N)		
VII.	*g-wa	*g-wa	*-g-wa	*g-ya	*g-ya	*-g-ya
VIII.	*tV-/*gV-mun	*tV-/*gV-mun	*(-tV)-mun	*ga-ʔan	*ga-ʔan	*-ʔan
IX.	*muni	*muni	*-muni	*[ʔi]yanu	*[ʔi]yanu	*-[ʔi]yanu
X.	*gV-mun	*mwa	*mwi	*gV-[ʔ]yin	*(nV-)gV-ʔyi	*(nV-)gV-ʔyi
XI.	*HVm(HVm)ʔ	*-mVm	*-Vm(-)	*[ʔ]yin, Zm., Bt. hine	*-yin	*-yin
XII.	*-maN	*-ma	*maN	*-yiN	*-ni(y)	*-yiN
XIII.	*(-)miya(miya)	*-yVm / *-min	*-miyunV	*(-)mun[d]a	*-nun[d]a	*-mundaʔ
XV.	*manay/*ngaʔ		*-manay / *-nga			

XVI.	Db. _min .. tōkón_	_tòkōn_	_tòkōn_	Db. _mìné_	_*kinV_	_*kinV_
XVII.	_*me(nam)_					
XVIII.	_*(nta-)mu_	_*-mu_	_*-mu_	_*(nta-)nay_	_*-nay_	_*-nay_
XIX.	_*(ntu-)mu_	_*-mu_	_*-mu_	_*(ntu-)yin_	s. _*mi_; o. _*yi_	_*-yi_
XX.	_*na-ya(n)?_	_*-V-ya_	_*-(n)V-ya_	_*nV-ma_	_*-V-ma_	_*-V-ma_
XXI.	_*aŋ_	_*-ʔaŋ_	_*-ʔaŋ_	Ke. _áré_ Kw. _ná_	Ke. _-ʔáré_	Ke. _-áré_
XXII.	Le. _nà.-ngà_ To. _ná-gəŋ_	Le. _-nga_	Le. _-anga_	_*ni_	_*-ni_	_*-V-ni_
XXIII.	_*Vndi_	_*-n(d)i_	_*-ndV_	_*nVn_	_*-(V)-nVn_	_*-VnVn_
XXIV.	So. _ónoŋ_, Ba. _aye_, Ma. _ea_	_-g-ene_	_-ine_	Ba. _ane_ Ma. _nɛ_		
XXV.	EDng. _nìì-r(à)_ Mi. _kéè-tà_	s. _nìì_; o. _-ye(n)-_	_níin(ín)_	EDng. _níí_ Mi. _níì-tà_	_-nin/ŋ-_	
XXVI.	_kìné(ŋ)_	s. _ʔiŋ_, _ʔí-di_; o. _iŋ_	_-in_	_kàyè(ŋ)_	s. _ʔay(-di)_; o. _ay_	_-ay_
XXVII.	_*(n)in_	Mb. _an_, Jg. _ʔanneŋ_	Mb. _-jìné_, Jg. _-tiŋ_, Bi. _niŋ_		s. Bi. _-yaŋ_	Bi. _-teŋ_
XXVIII.	_kɔne_					

6.2. Chadic 2P

	singular m. / f.			plural		
Nr.	Independent	Object	Possessive	Independent	Object	Possessive
I.	_*ka-i / *ki-i_	_*ka / *ki_	_*-ki / *-ki_	_*ku-u_	_*ku_	_*-ku_
II.	_*(-)ka_, Su. _*-ki_	_*ka_, Su. _*ki_	_*-ka_, Su. _*-ki_	_*(-)kun[i]_	_*kun_	_*(-)kun_
III.	_*(ya-)ka/*(yi-)ki_	_*ka / *ki_	_*-aka / *-ki_	_*kun_	_*ku_	_*ku_
IV.	_*ka-a / *ki-i_	_*ka / *ki_	_*ka-u / *ki_	_*kuni_, _*maka_	_*ku_	_*ku_
V.	_*kuni / *mati?_	_*ku(i) / *-kimu_	_*ku(i)/*-[k]ma_	_*kuna/i_	_*-kVn/m_	_*-kVnV_
VI.	_*kay / *kam_, c. _ki_	c. _*ki / *ku_	c. _*gi / *gu-[k]a_	_*kin / *kun_	_*kin_	_*gu-ki(N)_
VII.	_*ki / *kVm_	_*ki / *kVm_	_*-ki / *-kVm_	_*kun_	_*kun_	_*-kun_
VIII.	c. _*[ky]a_, Tr. _to_, Pi. _tu-teŋ_	c. _*[ky]a/*[kw]a_ Tr. _ro_, Pi. _tu_	c. _*-[ky]a / *-[kw]a_, Pi. _-tu_	_*kuni_ Tr. _tun(u)_	_*kuni_ Tr. _nu_	_*kuni_
IX.	c. _*ka / *ku_	c. _*n-ka_	c. _*(n-)ka_	_*kuni_	_*kuni_	_*-kuni_
X.	c. _*(n-)ka / *ku_	c. _*n-ka_	c. _*-n-ka_	_*gV-kuni_	_*kun_	_*-ku[n]_
XI.	c. _*ka / *ki_	c. _*-[k]u_	c. _*-ku_	_*kun_	_*-k(V)n_	_*-kun_
XII.	c. _*Ka-ka_	c. _*ḍa < *t-ka?_	c. _*-ka/*-kwa_	_*Ka-kVni_	s. _*-kVni_	_*-kVni_
XIII.	c. _*KV-ka_	c. _*KV-/N-ka_	c. _*-ka_	_*kuna(ma)_	_*kuna_	_*-kuna_
XV.	c. _*(Ka-)ka / *(na-)kwa_			_*kuni(mu)_		_*-kun_
XVI.	c. _*ku_, Mgy. _ho / me_	c. _*-[k]u_	c. _*ku_	_*kini_	_*kini_	_*kini_

XVII.	c. _ka_		_ko_	_ke…āŋ_		
XVIII.	c. _*kin/*kun_, Bd. _na/nεm <_ _*n-ka / *n-kVm_	_*-ku / *-kVm_	c. _*ku_, Bd. _-gu / -(g)um_	_*(nta-)kuni_	_*-kuni_	_*-kuni_
XIX.	_*ntu-ku(nu) / *-kum_	_*-ku / *-kum_	_*-ku / *-kum, *-ka_	_*(ntV-)kini_	_*ki[ni]_	_*-ki_
XX.	_*(na-)n-ku / *(na-)ku_	_*-an-ku/*-a-ku_	_*-an-ku / *-a-ku_	_*ni-kiya_	_*-V-kiya-_	_*-V-kiya-_
XXI.	_*(-)[k]am / *(-)[k]i_	_*-[k]am / *-[k]i_	_*-[k]am / *-[k]i_	_*kan_	_*-kVn_	
XXII.	_*ki / *[k]VmV_	_*ki / *[k]VmV_	Le. _-om /-ere_	_*kVn_	_*-kVn_	_*-V-kVn_
XXIII.	_*Vn-kVm / ?_	_*[k]Vm/*[k]Vy_	_*[k]Vm/*[k]Vy_	_*kVni_	_*-(V)-kVn_	_*-VkVn_
XXIV.	c. _ca_	c. _-gi_	c. _-um_	_kúnuŋ_	_-guŋ_	_-uguŋ_
XXV.	EDng. _kín/kán_	_kíí / káá_	_-iny- / -kə(n)-_	_kún_	_kúú_	_-kon-_
XXVI.	_kéŋ/kóŋ, kónti_	s. _k-/m-_; o. _ki / kiŋ_	_-a / -i_	_kunóŋ_	_kun_	_-(g)um_
XXVII.	Mb. _kam/kim_, Jg. _kéè, ki / kánée_, Bi. _ki-/ka-_	Mb. _ka / kí_ Jg. _-ŋ / -kee_ Bi. s. _-kin/-kán_	Mb. _-dà/-jìgè_ Jg. _-(c)aŋ_ Bi. _-jun / -ke_	_*kun_ Kajakse _ʔeetè_	_*kVn_ Kajakse _kann_	_*-kun_
XXVIII.	_kɔniŋ_					

6.3. Chadic 3P

	singular m. / f.			plural		
Nr.	Independent	Object	Possessive	Independent	Object	Possessive
I.	_*si-i / *-ta_	_*si / *ta_	_*-sa / *-ta_	_*su-u_	_*su_	_*-su_
II.	c. _*(-)ni_, Su. _-ri_	c. _*ni_, Su. _ri/ra_	c. _*-ni/*-muk_ Su. _ri/ra_	_*(-)mu_	_*mu_	_*(-)mu_
III.	_*yi-s[i]/*-t[i]_	_*si / *ti_; s. Fy. _mí_, DB. _ʔa_ (m.)	_*-is / *-it_	_*sin / *s[u]n_	_*si / *su_	_*-i/u-s_
IV.	_*sí-i / *ta-a_	_*ni / *ta_	_*mi / *ta-u_	_*suni_	_*su[ni]_	_*su_
V.	_*tani / *ti(ni)_	_*-ya / *-ĉa_	_*-su / *-sa_	_*ĉani_	_*-ĉani_	_*-sVn_
VI.	_*ta/*sa_, c. _*ti, *ni_	c. _*ti/*tu_	_*gi-/gu-si_	_*sun / *sin_	_*si, *wuri?_	_*gu-si(N)_
VII.	_*a-ti / -tu_	_**ti / *tu_	_*-ri / *-ra?_	_*a-[g]-ti_	_*[g]-ti_	_*-[g]-ti_
VIII.	c. _*tV-ni?_	?	c. _*-Vn_	_*-ndV <*-tVn_	_*-ndV_	_*-tVn_
IX.	c. _*ǰa < *nt-sa?_	c. _*ni, *nta_	c. _*ni, *nta_	_*ntan_	_*ntan_	_*-ntan_
X.	c. _*n-ta, *n-ki_	c. _*n-ta, *n-ki_	c. _*n-ta/i, *n-ki_; FMc. _-kʊ/-tʊ_	_*gV-tuni_	_*tun_	?
XI.	_*su / *ku_	?	_*-Vn / *-ta_	_*tin_	_*-tVn_	_*-tin / *-tun_
XII.	Lm. c. _nèḍè_ Hdk. c. _sí_	c. _*na_	Lm. _-ìnì_	_*na-Kani_	?	Lm. _-tàŋ_
XIII.	c. _*sina?_	c. _ø, *nV_	c. _*-na, *-sVnV_	_*tanV_	_*tuna_	_*-tVnV_
XV.	c. _*a, *na_		c. _*-(V)Na_	_*tan_		_*-tVn_
XVI.	c. _*siN_	Db. _-ū_	c. _*tik_	Db. _sìnígī_ Mgy. _tini_	_*ta_	_*taN_

XVII.	_a / tª_	_ni_	_ni_	_a...(āŋ)_		_ti_
XVIII.	_*nta-a, *ni-i / *(nta-)i_	_*-ni / *-ʔi_	_*-ni / *-ʔi_	_*(nta-)tan_	_*(ntV-)tani_	_*-tan_
XIX.	_*a, *ni / *ta, *ti_	_*-(a)NV/*-ta_	_*-ni / *-ta_	_*tV(n)_	_*-ti_	_*-ti_
XX.	_*(na-)mu / *ʔa_	_*-V-mu / *-tV?_	_*-ta-mu / *-a-ʔa_	_*ni-siya_	_*-V-siya_	_*-V-siya_
XXI.	Ke. _tó / tá_			Ke. _té /yé_ Kw. _ʔi_		
XXII.	_*(ta-)ʔi / *tu_	Le. _-du_	_-ei, -ai / -oro_	_*kV_	Le. _-ge_	Le. _-ege, -age_
XXIII.	_*an[t]-ku / *tanV;_ Tm. m. _ḍáàn_	_*-[k]u / *-tV?_	_*-[k]u / *-tV?_	_*kV_	_*-(V)-kV_	_*-kV_
XXIV.	_bokaŋ, bokoŋ_	_-ga_	_-i, igiŋ_	_ániŋ_	_-giŋ_	_-igiŋ_
XXV.	EDng. _ŋaar(à)_	s. _ŋà / tyà_		_ŋùùr(à)_	s. _ŋù_	
XXVI.	_yòdé, yòŋ / tòdé, tòtti_	_yi / tti_	_-i / -tu_	_kànáŋ_	_ni_	_-aŋ_
XXVII.	Mb. _ar / tír <_ _*a-di / *ti-di_ Bi. _ŋe- / na-_	Jg. dir. _-k(y)-c_ indir. _e / -ti_ Bi. s. _-yí / -tí_	Mb. _-dì / -jì_ Jg. c. _-ji; -c_ Bi. _-ji, yi /-ti_	Mb. _kɛr_ Bi. _ŋu_	Mb. _ke, kɛr_ Jg. _-co_ Bi. s. _-yó_	Mb. _-jód_ Jg., Bi. _-co_
XXVIII.	_era, ?nili_			_ere_		

6.4. Chadic pronominal protosystem

	Set A: independent series		Set B: object series	
person	sg.	pl.	sg.	pl.
1	_*ʔan-i_	incl. _*muni_	_*[ʔ]ya, *ʔi, *yu_	incl. _*mu(ni)_
	(_*ʔan-u, *ʔan-a?_)	excl. _*ʔyina/u_ < _*ḥina/u?_		excl. _*(ʔyi)na/i/u_
2 m.	_*ka[y]_	_*kuni_	_*ku_	_*kuni/a_
2 f.	_*ki[m]_		_*kum, *kim_	
3 m.	_*si, *su_	_*suni_	_*sV, *ni_	_*suni / *tuni_
3 f.	_*ta_		_*ta_	

7. Afroasiatic pronominal protosystem

The original Afroasiatic system of personal pronouns was represented by the same opposition of set A = subject case (independent) vs. set B = absolutive case (object and possessive series). The most archaic forms may be reconstructed as follows:

Stage 1

	Set A: independent series		Set B: object series	
person	sg.	pl.	sg.	pl.
1	*_ʔaku_	incl. *_muni_	*_ʔya_ / *_ʔyi_ / *_ʔyu_	incl. *_muni_
		excl. *_ḥina/u_		excl. *_na_/*_ni_/*_nu_
2 m.	*_ta_	*_tunwa_	*_ku_	*_kunwa_
2 f.	*_ti_	*_tunya_	*_ki_	*_kinya_
3 m.	*_šuwa_	*_šunwa_	*_šu_	*_šunwa_
3 f.	*_šiya_	*_šinya_	*_ši_	*_šinya_

The plural pronouns of the 2 and 3P can be analyzed as the singular roots extended by the plural marker _-n-_ affixed between the proper pronominal roots *_tV-_/*_kV_, resp. *_šV-_ and the gender marker *_-wa_/*_-ya_. It is not excluded that the gender distinction *_šu-_/*_ši-_, resp. pl. *_tu-_/*_ti-_ in set A is secondary, influenced by the following gender marker *_-wa_/*_-ya_ while the original vocalization could be uniform: *_ša-_, *_ta-_ without the gender distinction. The following development emphasized the pronouns of the 1 and 2P by the "prefix" *_ʔan-_, which is interpreted by some scholars as the verb "to be" conjugated by the stative endings (Reinisch 1909, 50-66; Castellino 1962, 17; Orel 1990, 54), by others as the particle "self" (Dolgopolsky 1984, 91). Typological parallels imply rather the second solution. Prefixing the particle *_ʔan-_ was originally evidently facultative and so e.g. some South Semitic languages do not use it at all (see tab. 4, fn. 1, 5, 7, 10), Berber uses it in the 1 and 3P, but not in the 2P, where the forms from set B have expanded (tab. 3). Egyptian uses the prefix *_ʔan-_ only in the 1P (tab. 2). In Chadic, the particle *_ʔan-_ can be identified in 1P sg. *_ʔan-i_ (*_ʔan-a_ or *_ʔan-u_ resp.), but probably also in the most archaic *_ʔVn-kV_ (< *_ʔan-ʔaku_) known from the Tera and perhaps Lai (Lele _-ng_, Tobanga _n̄nū_ ?), perhaps also in the 1P pl. (Sokoro _ónoŋ_, Jegu object _ʔannaŋ_). This emphasized stage can be reconstructed as follows:

Stage 2

	Set A: independent series		Set B: object series	
person	sg.	pl.	sg.	pl.
1	*_ʔan-ʔaku_	incl. *_ʔan-muni_	*_ya_ / *_yi_ / *_yu_	*_na_ / *_ni_ / *_nu_
		excl. *_ʔan-ḥina/u_		
2 m.	*_ʔan-ta_	*_ʔan-tumu/-tunV_	*_ku_	*_kumu_ / *_kunV_
2 f.	*_ʔan-ti_	*_ʔan-tin(n)a_	*_ki_	*_kin(n)a_
3 m.	*_šu(wa)_	*_šumu_ / *_šunV_	*_šu(wa)_	*_šumu_ / *_šunV_
3 f.	*_ši(ya)_	*_šin(n)a_	*_ši(ya)_	*_šin(n)a_

Note:
The cluster *_-nw-_ in maculine forms of the 2nd and 3rd plural persons developed in two ways, perhaps according to the final vowel: *_-m-_/*_-n-_, similarly in feminine *_-ny-_ > *_-nn-_ > */_nn-_/*_-n-_.

Conclusion

The further development of the pronominal system of all Afroasiatic branches was probably independent, but it was characterized by some common features and tendencies.

I. The expansion of the pronominal systems of Set B into Set A:
Ia. 1P sg. **ʔan-ī & *ʔan-ʔ(y)a* instead of more archaic **ʔan-ʔaku* (its originality is confirmed by stative endings in Semitic, Egyptian, Berber): Central + East Cushitic, Dahalo, some Semitic
Ib. 2P sg. m. in **ku / *ka* (**ka* after **-ta* from set A of the termination of the absolutive case?), f. **ki*, and pl. **kunV* or **kumV*: South Semitic, Egyptian, Berber.
Ic. 1 & 2P sg., and 2P pl.: Beja, Central Cushitic (Khamta, Khamtanga, Khamir), East Cushitic (Dasanech, Elmolo, Arbore – only sg; some Dullay and Sidamo, but without 2 sg.), South Cushitic: South Cushitic: Iraqw cluster; most Chadic (frequently with the 1P sg. without the prefix **ʔan-*).
II. The opposition of the inclusive and exclusive pronouns of the 1P pl. has been lost in most Afroasiatic branches. Only Chadic preserves the exclusive form **muni* vs. inclusive **ḥina/u* > **ʔyina/u*. The traces of the opposition appear in East Cushitic (Tab. 7, fn. 4, 5) and North Omotic (Tab. 9, fn. 3).
III. The *m*-forms in the 1P sg. known in West Chadic: North + South Bauchi, and Central Chadic: Pidlimdi *-ma*, Bura *-mi* (both possessives) and Musgu **mutan*, besides subject prefix **mV-*, exactly correspond to the endings of the so-called Highland East Cushitic "second conjugation" (Tab. 7, fn. 17). These *m*-forms can be considered as unpreserved singular to the plural **muni*. In this case they represent a very archaic relic, confirmed by external parallels in other Nostratic families (Affuso 1977, 256; Dolgopolsky 1984, 73; Dolgopolsky 1987, 211). There is a very speculative possibility of seeing a reflex of the original **mVni* (via **mni* > **nni*?) in the object enclitic **ni* known from Chadic and Semitic. An indirect proof may be preserved in the North Bauchi object forms: Warji *-ni & -men*, Mburku *-məni*, Jimbin *-ní*, where **-mVni* and shortened **-ni* are changeable.
IV. The *w*-forms in the 1P sg. with the variant **ʔi* are attested in the possessive suffix known from Hausa *-(w)a*, West Margi *-wɛy*, Gidar *wa*, Kotoko **-wu*, Musgu **-u*, Sokoro *-u*, Mokilko *-o*. This common Chadic suffix is compatible with the Berber compound pronoun of the indirect object **HīH-ū* < **-ū/w* (see Tab. 3) and perhaps with the Egyptian dependent pronoun *wj*, with probably a more archaic variant *ỉw* (Tab. 3, fn. 12). The Chadic-Berber(-Egyptian) isogloss can be analyzed as the apophonic variant to the pronoun **[ʔ]yu* (see above). An analogical development may be identified in nisbah in **-iya* vs. **-uwa* (Diakonoff 1988, 60).
V. The possessive or object pronoun **-ʔa* attested again in several Chadic groups (Hausa, Bade-Ngizim, Musgu) corresponds to the East Semitic (Akkadian-Eblaic) dative form **-a* of the 1P sg. possessive pronoun (Tab. 1, fn. 26) and probably to the 1P sg. prefix of the imperfect known in Semitic, Cushitic and Berber prefixal conjugations.
VI. The gender distinction in the 2P sg. m./f. **ka(y)* vs. **ki(m)* has exact parallels in proto-Berber **kayy / *kamm* (Tab. 2, fn. 2, 3) and proto-Egyptian **kuwa / *kima* (Tab. 3).
VII. The expansion of the *t*-demonstrative (originally reserved to the inactive class of nouns, later feminine) in the system of personal pronouns of the 3rd person is attested in both Chadic and Berber branches.

VIII. The Afroasiatic *n*-demonstrative used in some Chadic languages in function of the 3rd person corresponds to East Cushitic: Dullay object *-na-* (Tab. 5, fn. 8) and South Cushitic *ʔin- (Tab. 8), cf. also Egyptian *nw*, *nn*, *n* "those".

IX. The Afroasiatic *k*-demonstrative, frequently a marker of the active (masculine) class of nouns, appears also among the personal or possessive pronouns of the 3rd person in Chadic. In this function hypothetical cognates appear perhaps in South Omotic (Tab. 9, fn. 15).

The process described above, especially §§ I & II, can be verified typologically in comparison e.g. with the Indo-European pronominal system, where the pronouns of the object set expanded into the subject series, cf. the independent (subject) form *H_1eĝHom vs. *me- as the base of indirect (object) cases in the 1st person sg., or the lost opposition of the inclusive *me-/*u̯e- vs. exclusive *no- in the 1st person pl. (Illič-Svityč 1976, 56). Since analogical tendencies recur independently in various areas and times, not only in Afroasiatic but also in Indo-European (and other) language families, it may be interpreted as a universal rule.

Most of the quoted isoglosses have the character of archaisms or results of independent convergent development. Probably only cases IV, VI, perhaps VII, represent common innovations reflecting the same dialectal area in the Afroasiatic language continuum.

The phenomenon of suppletion is reconstructible, both for the most archaic and for later, or even sometimes contemporary, phases of development of the Afroasiatic language continuum, beginning from the Afroasiatic protolanguage. The fundamental opposition between the subject and object pronominal series in the 1st and 2nd persons was originally expressed by different roots. In their later development these series frequently merge, when the subject series is usually replaced by the object series, but the traces e.g. in the system of verbal personal exponents indicate the original existence of both series (Berber; West Rift). This conclusion may serve as an inspiration in the discussion about the difference between the Indo-European 2 P sg. pronoun in *t- and the corresponding verbal exponent in *-s, reflecting, perhaps, an older opposition between the subject *s*-pronoun vs. the object *t*-pronoun.

ABBREVIATIONS

A Archaic, AA Afroasiatic, acc. accusative, Af Afar, Akk Akkadian, Al Alagwa, Ar Arbore, Arab Arabic, Aram Aramaic, Art Artelga, Ass Assyrian, Auj Aujila, Aw Awngi, Bab Babylonian, Bd Buduma, Beḍ Beḍawye, Bi Bidlya, Biš Bišarin, Bl Billn, Bmb Bambeši, Bnč Benčnon, Bnn Banana, Bo Boni, Br Burji, Bt Bata, Bu Bura, Bur Burunge, c. common, C Central, Copt Comptic, Das Daseneč, dat. dative, Db Daba, di. direct, Dm Dime, Dng Dangla, Du Dullay, e. exclusive, E East, Ebl Eblaite, Eg Egyptian, El Elmolo, f. feminine, Ga Galila, Ge Geji, gen. genitive, Gf Gofa, Gnz Ganza, Gz Geez, H Highland, Ha Hadiya, Hal Halenga, Hbr Hebrew, Hdk Hidkala, Hm Hamer, Hr Harsusi, Hz Hozo, i. inclusive, impf. imperfect, in. indirect, Ir Iraqw, Iz Izayan, Jg Jegu, Ji Jibbali, Kam Kambatta, Ke Kera, Kf Kafa, Ki Kilba, Ko Konso, Ku Kullo, Kw Kwang, l later, La Lele, Lm Lamang, m. masculine, Mb Mubi, Mg Mgulld, Mgy Musgoy, Mh Mehri, Mig Migama, Mnd Mandara, Mrg Margi, Msg Musgu, n new, N North, Na Nakatsa, Nd Ndhir, Ngw Ngwaxi, Num Numidian, o. object, O Old, Om Ometo, P Person, pf. perfect, Ph Phenician, Pl Pidlimdi, pl. plural, Qtb Quatabanian, Qw Qwara, Qwd Qwadza, Re Rendille, s. subject, S South, Sa Saho, Sb Sabaic, Se(m) Semitic, sg. singular, Sid Sidamo, Som Somali, Sq Soqotri, Su Sura, Syr Syrian, Sz Sezo, Sh Sheri, Sk Sako, Te Tigre, Tm Tumak, To Tobanga, Tr Tera, Ts Tsamay, Ty Tigray, Ugar Ugaritic, W West, Wl Wolaita, Ya Yaaku, Ye Yemsa, X Xamta, Xr Xamir, Xt Xamtanga, Zm Zumu, Zng Zenaga.

REFERENCES

AAP, Afrikanistische Arbeitspapiere.

Affuso, E., 1977, l pronomi di l e ll persona in semitico, egiziano e berbero, *Annali dei instituto Orientale di Napoli* 37, pp. 249-281.

Aikhenvald, A., 1986, On the Reconstruction of Syntactic System In Berber-Lybic, *Zeitschrift für Phonetik, Sprachwissenschaft und Kommunikationsforschungen* 39, pp. 527-539.

Alio, K., 1986, *Essai de description de la langue bidiya du Guéra (Tchad)*, Berlin: Reimer.

Allan, E.J., 1976, Dizi, in: Bender, L.M. (ed.), *The Non-Semitic Languages of Ethiopia*, 1976, Michigan, pp. 377-392.

AM, Africana Marburgensia.

Appleyard, D.L, 1984, Possessive pronoun suffixes in Somali and their cognates in other Cushitic languages, in: Labahan, T. (ed.), *Proceedings of the Second International Congress of Somali Studies*, Vol. I, Hamburg: Buske, pp. 115-133.

— 1986, Agaw, Cushitic and Afroasiatic: the personal pronoun revisited, *Journal of Semitic Studies* 31, pp. 195-236.

AuÜ, Afrika und Übersee.

Banti, G., 1987, Evidence for a second type of suffix conjugation in Cushitic, In: *IHSC*, 4, pp. 123-168.

Barreteau, D., 1988, *Description du mofu-gudur*, Paris: ORSTOM.

Barth, J., 1913, *Die Pronominalbildung in den semitischen Sprachen*, Leipzig: Hinrich.

Bechhaus-Gerst, M., 1985, "Du bist, was du hast" - Zur Entstehung neuer Personalpronomen im Tu Beḍawie (Beja), *AAP* 1, p. 125.

Belova, A.G., The position of Himyaritic within the South Semitic group of Semitic languages (Yemenite-Ethiopian Isoglosses), In: *ICES*, 9, pp. 28-34.

Bender, L.M., 1971, The languages of Ethiopia, *Anthropological Linguistics* 13, pp. 165-288.

— 1975, *Omotic: A New Afroasiatic Language Family*, Carbondale: University Museum Studies.

Bender, L.M.,1988, *Comparative Aroid (South Omotic) Morphology*, Paper presented at II International Symposium on Cushitic and Omotic languages. Turin: Ms.

— 1990, The Limits of Omotic, In: Hayward, R.J. (ed.), 1990, pp. 584-616.

Blažek, V., 1995, The microsystems of personal pronouns in Chadic, compared with Afroasiatic. In: *Chadica et Hamito-Semitica*, eds. D. Ibriszymow & R. Leger. Köln: Köppe, 36-57.

— 1997, Cushitic Lexicostatistics: The second attempt. In: *Afroasiatica Italiana. Studi Africanistici, Seria Etiopica* 6. Napoli: Istituto Universitario Orientale, 171-188.

— 2008, A lexicostatistical comparison of Omotic languages. In: *In Hot Pursuit of Language in Prehistory. Essays in the four fields of anthropology*, edited by John D. Bengtson. Amsterdam - Philadelphia: Benjamins, 57-148.

— 2010, On the Classification of Berber. *Folia Orientalia* 47, 245-266.

— 2013, Afroasiatic migrations. In: *The Encyclopedia of Global Human Migration* I, ed. by Immanuel Ness & Peter Bellwood. Oxford: Wiley-Blackwell, 125-132.

Böhm, G., 1987, Präfixkonjugation und Suffixkonjugation in den omotischen Sprachen, In: *IHSC*, 4, pp. 169-193.

Breeze, M.J., 1990, A Sketch of the Phonology and Grammar of Gimira (Benchnon), In: *OLS*, pp. 1-67.

Brugnatelli, V., 1987, Deux notes sur l'état d'annexion en Berbère, *IHSC*, 4, pp. 349-360.

Burquest, D.A., 1986, The pronoun system of some Chadic languages, In: Wiesemann, U. (ed.), *Pronominal Systems*, Tübingen: Narr, pp. 71-101.

Caïtucoli, C., 1983, *Lexique Masa*, Yaounde: Certodola.

Caprile, J.-P., 1971, Le mawer: une nouvelle langue du groupe "tchado-hamitique"?, *AM* 4/2, pp. 47-60.

— 1978, Notes linguistiques sur le tobanga à partir d'un conte en cette langue, In: *CTT*, pp. 121-175.

Castellino, G.R., 1962, *The Akkadian personal pronouns and verbal system in the light of Semitic and Hamitic*, Leiden: Brill.

Conti Rossini, C., 1904, Appunti sulla lingua awiyā del Danghalà, *Giornale della Società Asiatica Italiana* 18, pp. 103-194.

— 1927, Sui linguaggi periati a nord dei laghi Rodolfo e Stefania, In: *Festschrift Meinhof*, Hamburg, pp. 247-255.

CTT, 1978, *Cinq textes tchadiques (Cameroun et Tchad)*, Jungraithmayr, H., & Caprile, J.-P., (eds.), Berlin: Reimer.

Diakonoff (Djakonov), I.M., 1965, *Xamito-semitskie jazyki*, Moskva: Nauka.

— 1967, *Jazyki drevnej Perednej Azii*, Moskva: Nauka.

— 1988, *Afroasian Languages*, Moskva: Nauka.

— 1990, The Importance of Ebla for History and Linguistics, In: Gordon, C.H. (ed.), *Eblaitica: Essays on the Ebla Archives and Eblaite Language*, Winona Lake: Eisenbrauns, pp. 3-29.

Dolgopolsky (Dolgopol'skij), A.B., 1972, O proisxoždenii ličnyx okončanij glagolov v vostočnosidamskix i irakvskix jazykax, *Afrikanskij ėtnografičeskij sbornik* 9, pp. 103-112.

— 1973, *Sravnitel'no-istoričeskaja fonetika kušitskix jazykov*, Moskva: Nauka.

— 1984, On Personal Pronouns in the Nostratic Languages, In: Gschwantler, O., et al. (eds.), *Linguistica et Philologica*, Wien: Braumüller, pp. 65-112.

— 1987, On Etymology of Pronouns and Classification of the Chadic Languages, In: Arbeitman, Y. (ed.), *FUCUS: A Semitic/Afroasian Gathering in Remembrance of A. Ehrman*, Amsterdam - Philadelphia: Benjamins, pp. 201-220.

— 1989, *From Proto-Semitic to Hebrew*, Halfa: Ms.

Edel, E., 1955, *Altägyptische Grammatik I*, Roma: Pontificium Institutum Biblicum.

Ehret, C., 1980, *The Historical Reconstruction of Southern Cushitic. Phonology and Vocabulary*, Berlin: Reimer.

— Elderkin, E.D., & D. Nurse, 1989, Dahalo lexis and its sources, *AAP* 18, pp. 5-49.

Fleming, H.C., 1976a, Kefa (Gonga) Languages, In: *NSLE*, pp. 351-376.

— 1976b, Omotic Overview, In: *NSLE*, pp. 298-323.

— 1988, Mao's Ancestor. Consonant Phonemes of Proto-Mao. Stage one, in: *ICES*, 9, pp. 35-44.

— 1990a, A Grammatical Sketch of Dime (Dim-Af) of the Lower Omo, in: *OLS*, pp 494 -583.

— 1990b, Omotica, Afroasiana and More: Ethiopia as the ever-flowing vase, *Mother Tongue* 11, pp. 22-30.

Greenberg, J.H., 1963, *The Languages of Africa*, Bloomington: Indiana University Press.

Hayward, R.J., 1990, Notes on the Aari Language, In: *OLS*, pp. 425-493.

Hetzron, R., 1980, The Limits of Cushitic, *Sprache und Geschichte in Afrika* 2, pp. 7-126.

— 1988, The Position of Omotic, In: Bechhaus-Gerst, M. & F. Serzisko (eds.), *Cushitic-Omotic,* International Symposium on Cushitic and Omotic Languages, Hamburg: Buske, pp. 107-117.

Hodge, C., 1969, Afroasiatic Pronoun Problems, *International Journal of American Linguistics* 35, pp. 366-376.

Hoffmann, C., 1955, Zur Sprache der Chibak, *Afrikanistische Studien*, Berlin: Akademie-Verlag, pp. 118-146.

Hudson, R.A., 1976, Beja, In: *NSLE*, pp. 97-132.

ICES, 9, *Proceedings of the 9th International Congress of Ethiopian Studies,* Moskva 1986/88: Nauka.

IHSC, 4, *Proceedings of the 4th International Hamito-Semitic Congress,* Jungraithmayr, H. & W.W. Müller (eds.), 1987, Amsterdam-Philadelphia: Benjamins.

Illič-Svityč, V.M., 1976, *Opyt sravnenija nostratičeskix jazykov II*, Moskva: Nauka.

Jaggar, P., 1988, Guruntum (gùrdùŋ) (West Chadic - B): Linguistic Notes and Wordlist, *African Languages and Cultures* 1 (2), pp. 169-189.

Jungraithmayr, H., 1961, Beobachtungen zur tschadohamitischen Sprache der Jegu (und Jonkor) von Abu Telfan, *AuÜ* 45, pp. 95-123.

— 1963, Die Sprache der Sura (Maghavul) In Nordnigerien, *AuÜ* 47, pp. 8-89 and 204-220.

— 1965a, Texte und Sprichwörter im Angas von Kabwir (Nordnigerien), *AuÜ* 48, pp. 17-35 and 114-127.

— 1965b, Materiallen zur Kenntnis der Chip, Montol, Gerka und Burrum (Südplateau, Nordnigerien), *AuÜ* 48, pp. 161-182.

— 1967, Specimens of the Pa'a and Warja Languages, *AuÜ* 50, pp. 194-205.

— 1970, *Die Ron-Sprachen,* Glückstadt-Hamburg: Augustin.

— 1978, Présentation d'un conte en sibine (sumray) - texte, notes et vocabulaire, in: *CTT*, pp. 177-211.

Jungraithmayr, H. & Ibriszimow, D., 1994, *Chadic Lexical Roots*. I-II. Berlin: Reimer.

Kiessling, Roland. 2002. *Die Rekonstruktion der südkuschitischen Sprachen (West-Rift)*. Köln: Köppe.

Klingenheben, A., 1951, Althamito-semitische nominale Genusexponenten in heutigen Hamitensprachen, *ZDMG* 101, pp. 78-88.

Kogan, L., 2009, Semitskie jazyki. *Semitskie jazyki* I. Moskva: Academia, 15-112.

Korostovcev, M.A., 1963 Vvedenie v egipetskuju filologiju, *Izdatel'stvo vostočnoj literatury,* Moskva.

Kraft, C.H., 1974, Reconstructions of Chadic Pronouns I: Possessive, Object and Independent Sets - An Interim Report, in: Voeltz, E. (ed.), *Third Annual Conference on African Linguistics*, Bloomington: Indiana University Press, pp. 69-94.

Lamberti, M., 1989, *Cushitic Personalpronomina*, Paper presented at the II International Symposium on Cushitic and Omotic Languages, Turin.

Lebeuf, J., 1942, Vocabulaires Kotoko: Makari, Gulfei, Konseri, Afadé, *Bulletin de l'Institut Français d'Afrique Noire* 4, pp. 160-174.

Lexa, F., 1922, Comment se révèlent les rapports entre les langues hamitiques, sémitiques et la langue égyptienne dans la grammaire des pronoms personnels, des verbes et dans les numéraux cardinaux 1-9, *Philologica* 1, pp. 151-177.

Lukas, J., 1936, Die Logone-Sprache Im Zentralen Sudan, *Deutsche Morgenländische Gesellschaft*, Abh. XXI, 6, Leipzig.

— 1937, Zentralsudanische Studien, *Fortsetzungen der Abh. des Hamburg. Kolonialinstituts,* Hamburg.

— 1939, Die Sprache des Buduma im Zentralen Sudan, *Deutsche Morgenländische Gesellschaft,* Abh. XXIV, 2, Leipzig.

— 1941, Deutsche Quellen zur Sprache der Musgu in Kamerun, *Beiheft zur Ztschr. f. Eingeborenenspr.,* Heft 24, Berlin-Hamburg.

— 1965, Das Hitkalanci, eine Sparche um Gwoza (Nordnigerien), *AuÜ* 48, pp. 81-113.

— 1970, *Studien zur Sprache der Gisiga,* Glückstadt-Hamburg: Augustin.

— 1977, Das Mukulu. *AuÜ* 60, pp. 1-58, 192-225.

— & H. Meyer-Bahlburg, 1980, Vergleichende Untersuchungen zum Kotoko, *AuÜ* 63, pp. 177-182.

Lydall, J., 1976, Hamer, *NSLE*, pp. 393-438.

Matsushita, S., 1973, Personal Pronoun and verb structure in Gwandara (Nothern Nigeria), *AM*, 6/2, pp. 3-30.

Militarev, A. & O. Stolbova, 1990, First Approach to Comparative-Historical Phonology of Afroasian (consonantism), in: Mukarovsky, H.G. (ed.), *Proceedings of the Fifth International Hamito-Semitic Congress,* vol. 1, Wien: Afro-Pub, pp. 45-72.

Militarev, A., 2005, Once more about glottochronology and the comparative method: the Omotic-Afrasian case. In: *Orientalia et Classica* VI: *Aspekty komparatistiki*, 339-408.

Mouchet, J., 1950, Vocabulaires comparatifs de quinze parlers du Nord-Cameroun, *Etudes camerounaises* III/29-30: pp. 5-74.

— 1953, Vocabulaires comparatifs de sept parlers du Nord-Cameroun, *Etudes camerounaises* VI/41-42, pp. 137-199.

Mous, M., 1992, *A Grammar of Iraqw,* Leiden: PhD. Thesis.

Mukarovsky, H.G., 1983, Pronouns and Prefix Conjugation in Chadic and Hamito-Semitic, In: Wolff, E. & H. Meyer-Bahlburg (eds.), *Studies in Chadic and Afroasiatic Linguistics,* Hamburg: Buske, pp. 51-63.

— 1987, *Mande-Chadic. Common Stock,* Wien: Afro-Pub.

Newman, P., 1964, A Word List of Tera, *Journal of West African Languages* 1, pp. 33-50.

NSLE, *The Non-Semitic Languages of Ethiopia,* Bender, M.L. (ed.), 1976, East Lansing, Michigan State University.

OLS, *Omotic Language Studies,* Hayward, R.J. (ed.), 1990, London: School of Oriental and African Studies.

Orel, V.E., 1990, K prolsxoždenii ličnyx mestolmenij v semito-xamitskom, In: Sravnitel' no-istoričeskoe jazykoznanie na sovremennom etape (Konferencija pamjati V.M. Illiča-Svityča), *Institut slavjanovedenija i balkanistiki*, 54, Moskva.

Prasse, K.-G., 1972-74, *Manuel de grammaire touaregue* (tăhăggart), I-III, IV-V, VI-VII, Copenhague: Akademisk Forlag.

Reinisch, L., 1888, Die Kafa-Sprache in Nordost-Afrika, *SAW* 116, pp. 251-386.

— 1893, Die Beḍauye-Sprache in Nordost-Afrika, *SAW* 130, Abh. 7.

— 1909, *Das persönliche Fürwort und die Verbalftexion in den Chamito-semitischen Sprachen* (Schriften der Sprechenkommission I), Wien: Hölder.

Rössler, O., 1950, Verbalbau und Verbalflexion in den semito-hamitischen Sprachen, *ZDMG* 100, pp. 461-514.

— 1976, Jazyk Numidii, In: *Tajny drevnix pišmen*, Moskva: Progress, pp. 422-443 (orig. Die Sprache Numidiens, Sybaris. Wiesbaden 1958, pp. 94-120).

Sasse, H.J., 1976, Dasenech, In: *NSLE*, pp. 196-221.

— 1979, The consonant phonemes of Proto-East-Cushitic (PEC): A First Approximation, *Afroasiatic Linguistics* 7/1, pp. 1-67.

— 1981, Afroasiatisch, In: Heine, B. et al. (ed.), *Die Sprachen Afrikas*, Hamburg: Buske, pp. 129-146.

— 1982, *An etymological dictionary of Burji*, Hamburg: Buske.

SAW, *Sitzungsberichte der Akademie der Wissenschaften Philos.-Hist. Cl.*

Satzinger, H., 1987, *Strukturelles zum ägyptischen Personalpronomen*, Paper presented at the 5th International Hamito-Semitic Congress. Wien: Ms.

Schenkel, W., 1971, Das altägyptische Pseudopartizip und das Indogermanische Medium/Perfekt, *Orientalia* 40, pp. 301-316.

Schuh, R., 1978, *Bole-Tangale Languages of the Bauchi Area (Northern Nigeria)*, Berlin: Reimer.

— 1981, *A Dictionary of Ngizim*, Berkeley - Los Angeles - London: University of California Press.

Schuh, R.. 1984, West Chadic vowel correspondences, In: *Current Progress in Afroasiatic Linguistics*, Papers of the 3rd International Hamito-Semitic Congress. Amsterdam - Philadelphia: Benjamins, pp. 167-221.

SED Semitic Etymological Dictionary, Vol. I: *Anatomy of Man and Animals* by Alexander Militarev & Leonid Kogan, Münster: Ugarit-Verlag 2000.

Shimizu, K., 1978, The Southern Bauci group of Chadic languages, *AM* 11, Special Issue 2.

Sim, R.J., 1988, The Diachronic Derivation of the Verb in Northern Highland East Cushitic, In: Bechhaus-Gerst, M. & F. Serzisko (eds.), *Cushitic-Omotic*, Papers from the International Symposium on Cushitic and Omotic Languages, Hamburg: Buske, pp. 433-452.

Simeone-Senelle, Marie-Claude. 1997. The Modern South Arabian Languages. In: *The Semitic Languages*, edited by Robert Hetzron. London: Routledge, 378-423.

Skinner, N., *Northern Bauchi Pronouns*, Undated Ms.

Soden von, W., 1952, *Grundriss der Akkadischen Grammatik*, Roma: Pontificium Institutum Biblicum.

Starostin, G., 2010, Glottochronological classification of Afroasiatic languages. Ms.

Tourneux, H., 1978, Première note sur le mbara, *AM* 11/2, pp. 27-32.

— 1990. Place du masa dans la famille tchadique, In: Proceedings of the Fifth International Congress (Vienna, Sept 1987), Vol. 1, ed. by Hans Mukarovsky. Wien: Afro-Pub, 249-260.

— 1991, *Le système aspectual des langues dites "kotoko"*, Paper presented at the Symposium "Chadica et Hamito-Semitica", Frankfurt a.M.: Ms.

— Seignobos, C. & Lafarge, F., 1986, *Les mbara et leur langue (Tchad)*. Paris: SELAF.

Tucker, A,. 1967, Erythraic Elements and Patternings: Some East African Findings, *African Language Review* 6, pp. 17-25.

Voigt, R.M., 1978, Semitohamitisch und Omotisch, *AM* 11/2, pp. 33-60.

— 1987, The two prefix-conjugations in East Cushitic, East Semitic, and Chadic, *Bulletin of the School* of *Oriental and African Studies* 50, pp. 330-345.

Vycichl, W., 1952, Das berberische Perfekt, *Rivista degil Studi Orientall* 27, pp. 74-80.

— 1953a, Das persönliche Fürwort im Bedja und im Tigré, *Muséon* 66, pp. 157-161.

— 1953b, Die ägyptischen Pronominalendungen, *Muséon* 66, pp. 381-389.

— 1954, Der Aufbau der ägyptischen Pronomina *nt-f*, *nt-s* etc, *Muséon* 67, pp. 367-372.

— 1983, *Dictionnaire étymologique de la langue copte*, Leuven - Paris: Peeters.

Wente-Lukas, R., 1974, Zur sprachlichen Stellung des Bana, *AuÜ* 57, pp. 1-15.

Wolff, E., 1983, *A Grammar of the Lamang Language (Gwàɗ Làmàŋ)*, Glückstadt: Augustin.

Zaborski, A., 1975, *Studies in Hamito-Semitic I. The Verb in Cushitic*, Warszawa - Kraków: Pańtwowe wydawnicto naukowe.

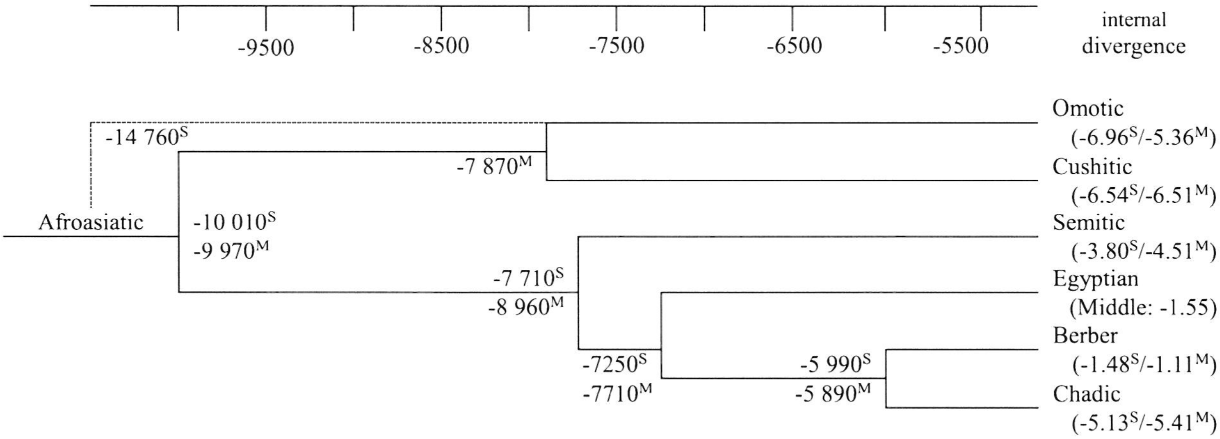
— 1984, Remarks on the Verb in Ometo, In: Rubenson, S. (ed.), *Proceedings of the Seventh International Conference of Ethiopian Studies*, East Lansing: Michigan State University, pp. 25-30.

— 1989, Cushitic Independent Pronouns, In: Beyene, T. (ed.), *Proceedings of the Eighth International Conference of Ethiopian Studies*, Addis Abeba: Institute of Ethiopian Studies, pp. 649-672.

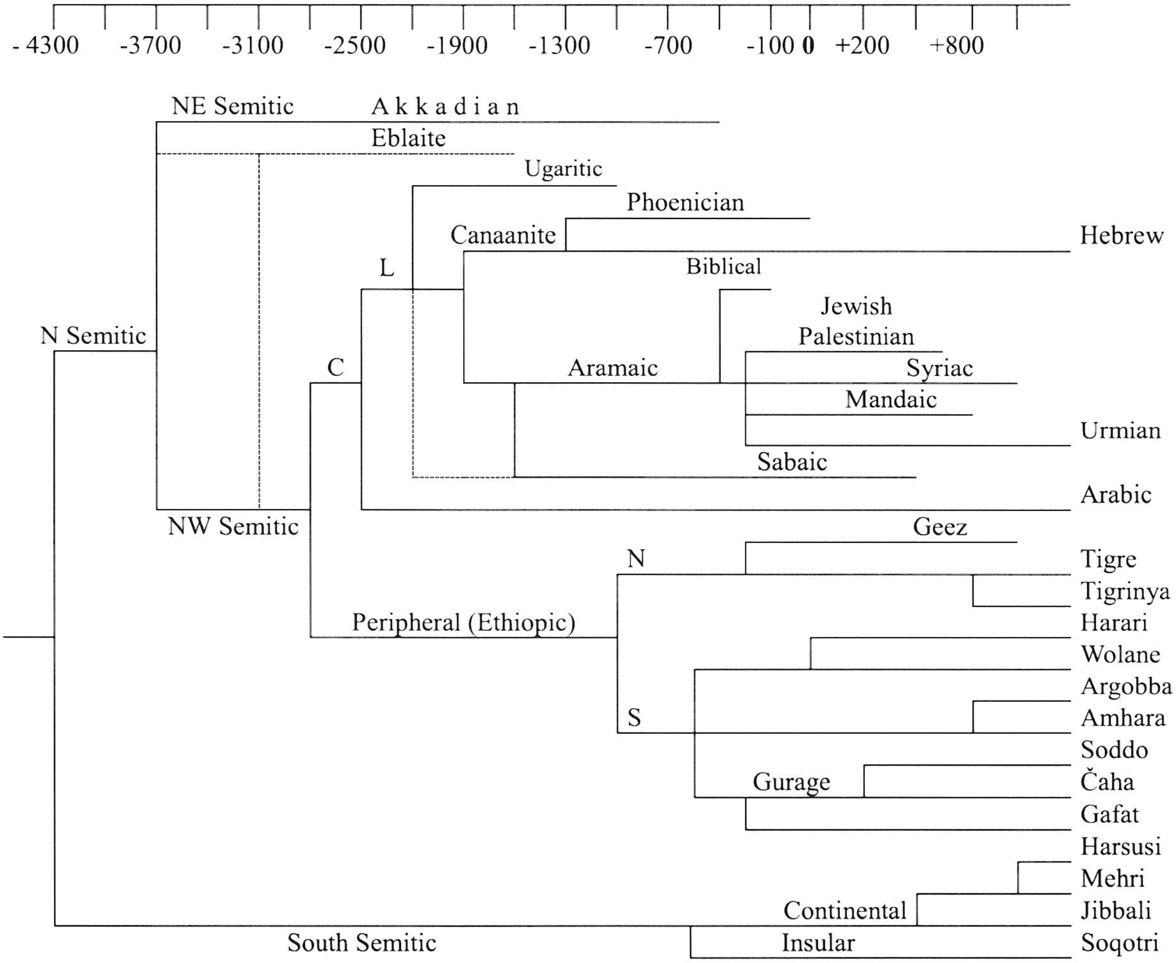
ZDMG, *Zeitschrift der Deutschen Morgenländischen Gesellschaft.*

Appendix: Diagrams

Afroasiatic (^{S} = G. Starostin 2010; ^{M} = A. Militarev 2005)


-9500
-8500
-7500
-6500
-5500
internal divergence
$-14\,760^S$
$-7\,870^M$
Afroasiatic
$-10\,010^S$
$-9\,970^M$
$-7\,710^S$
$-8\,960^M$
-7250^S
-7710^M
$-5\,990^S$
$-5\,890^M$
Omotic
($-6.96^S/-5.36^M$)
Cushitic
($-6.54^S/-6.51^M$)
Semitic
($-3.80^S/-4.51^M$)
Egyptian
(Middle: -1.55)
Berber
($-1.48^S/-1.11^M$)
Chadic
($-5.13^S/-5.41^M$)

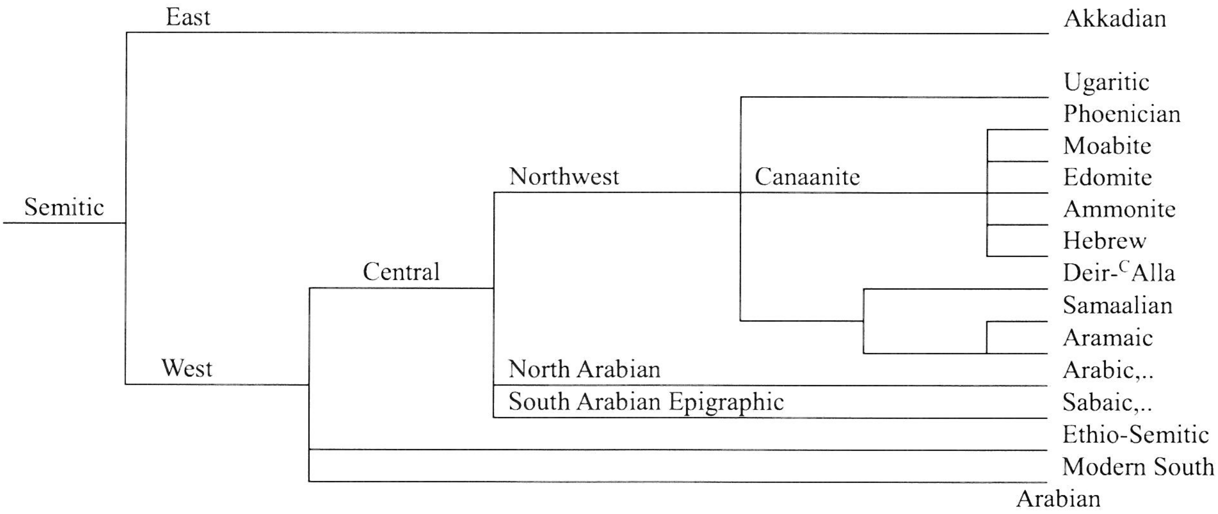
Semitic (Militarev 2000 in SED)


- 4300
-3700
-3100
-2500
-1900
-1300
-700
-100
0
+200
+800
NE Semitic
Akkadian
Eblaite
Ugaritic
Phoenician
Canaanite
Hebrew
L
Biblical
Jewish Palestinian
N Semitic
C
Aramaic
Syriac
Mandaic
Urmian
Sabaic
Arabic
NW Semitic
Geez
N
Tigre
Tigrinya
Peripheral (Ethiopic)
Harari
Wolane
Argobba
S
Amhara
Soddo
Gurage
Čaha
Gafat
Harsusi
Mehri
Continental
Jibbali
South Semitic
Insular
Soqotri

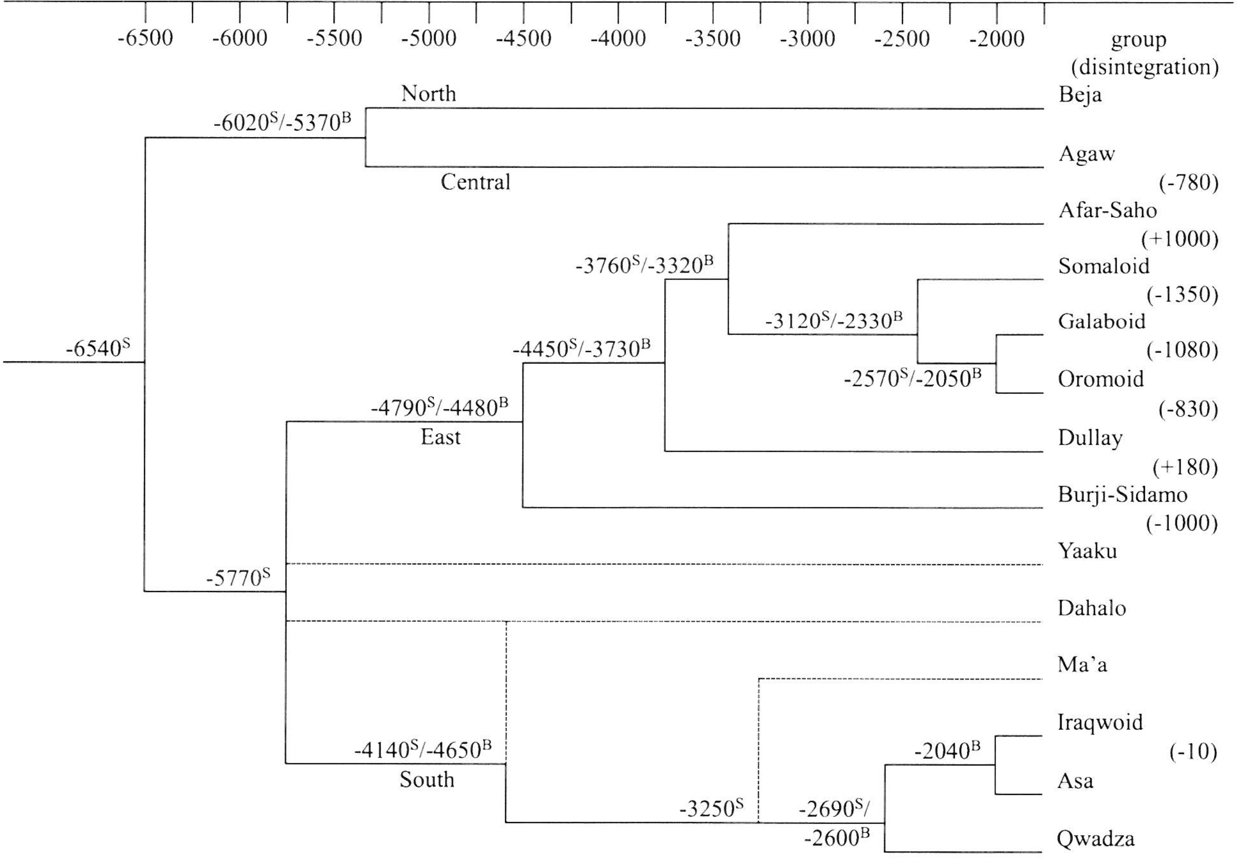
Abbreviations: C Central, E East, L Levantine, N North, S South, W West.

Note: On position of Sabaic see Hayes 1991.

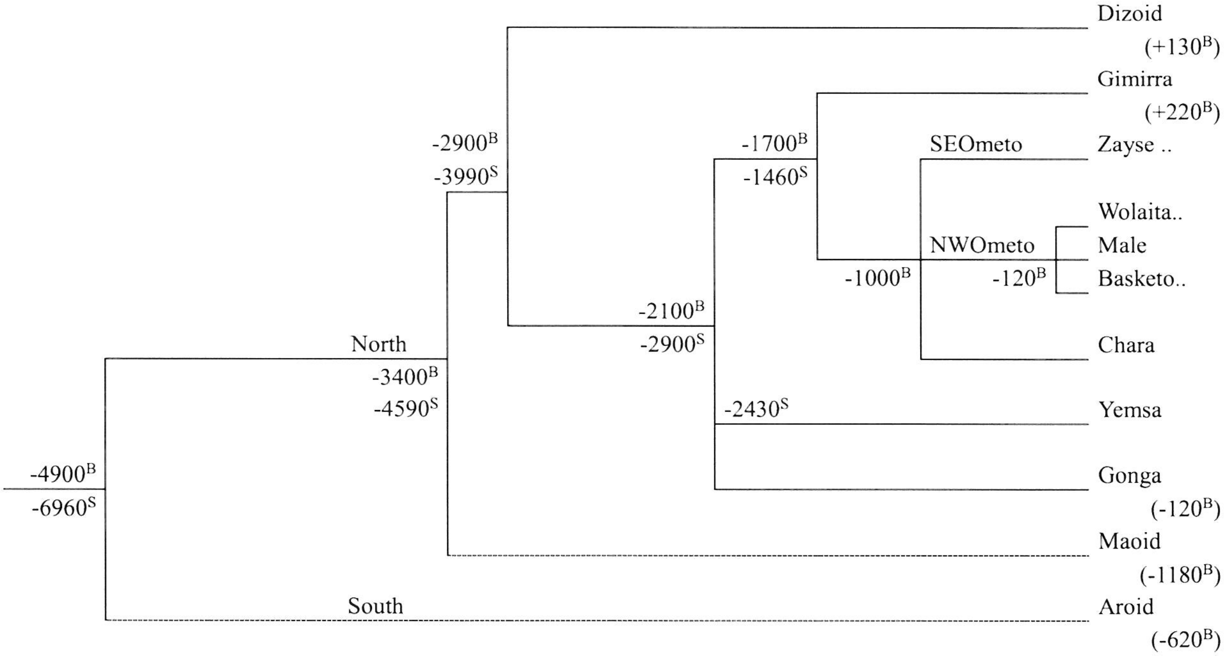
A more traditional classification is based on grammatical isoglosses (Kogan 2009, 20-21):


East
Akkadian
Ugaritic
Phoenician
Moabite
Northwest
Canaanite
Edomite
Semitic
Ammonite
Hebrew
Central
Deir-^{C}Alla
Samaalian
Aramaic
West
North Arabian
Arabic,..
South Arabian Epigraphic
Sabaic,..
Ethio-Semitic
Modern South Arabian

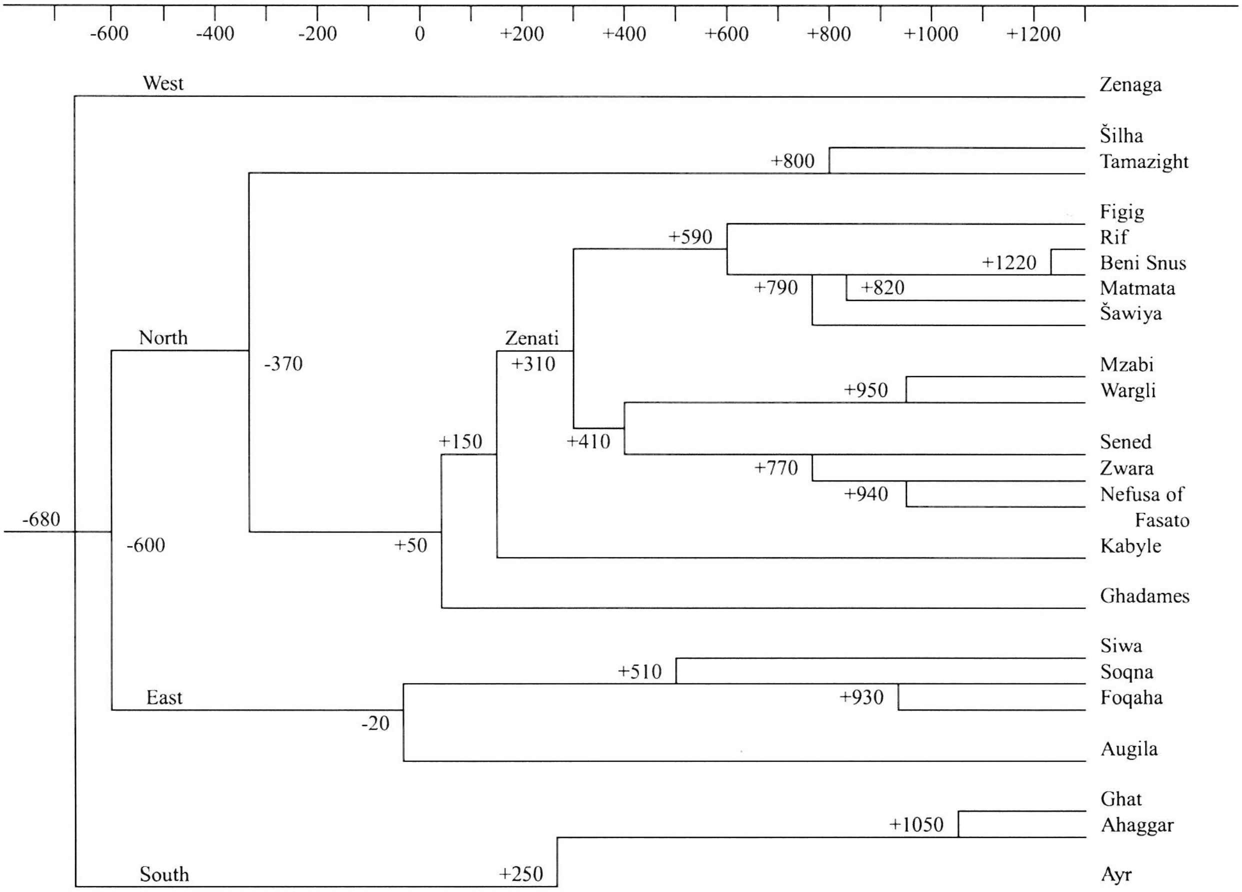
Cushitic (^{S} = Starostin 2010; ^{B} = Blažek 1997)

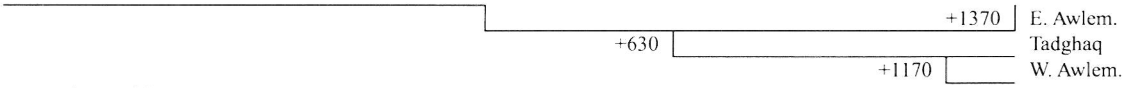

-6500
-6000
-5500
-5000
-4500
-4000
-3500
-3000
-2500
-2000
group (disintegration)
North
Beja
-6020^S/-5370^B
Agaw
Central
(-780)
Afar-Saho
(+1000)
-3760^S/-3320^B
Somaloid
(-1350)
-3120^S/-2330^B
Galaboid
-6540^S
-4450^S/-3730^B
(-1080)
-2570^S/-2050^B
Oromoid
-4790^S/-4480^B
(-830)
East
Dullay
(+180)
Burji-Sidamo
(-1000)
Yaaku
-5770^S
Dahalo
Ma'a
Iraqwoid
-4140^S/-4650^B
-2040^B
(-10)
South
Asa
-3250^S
-2690^S/-2600^B
Qwadza

Omotic (^{B} = Blažek 2008; ^{S} = Starostin 2010)


Dizoid
(+130^{B})
Gimirra
(+220^{B})
-2900^{B}
-3990^{S}
-1700^{B}
-1460^{S}
SEOmeto
Zayse ..
Wolaita..
NWOmeto
Male
Basketo..
-1000^{B}
-120^{B}
-2100^{B}
-2900^{S}
Chara
North
-3400^{B}
-4590^{S}
-2430^{S}
Yemsa
-4900^{B}
-6960^{S}
Gonga
(-120^{B})
Maoid
(-1180^{B})
South
Aroid
(-620^{B})

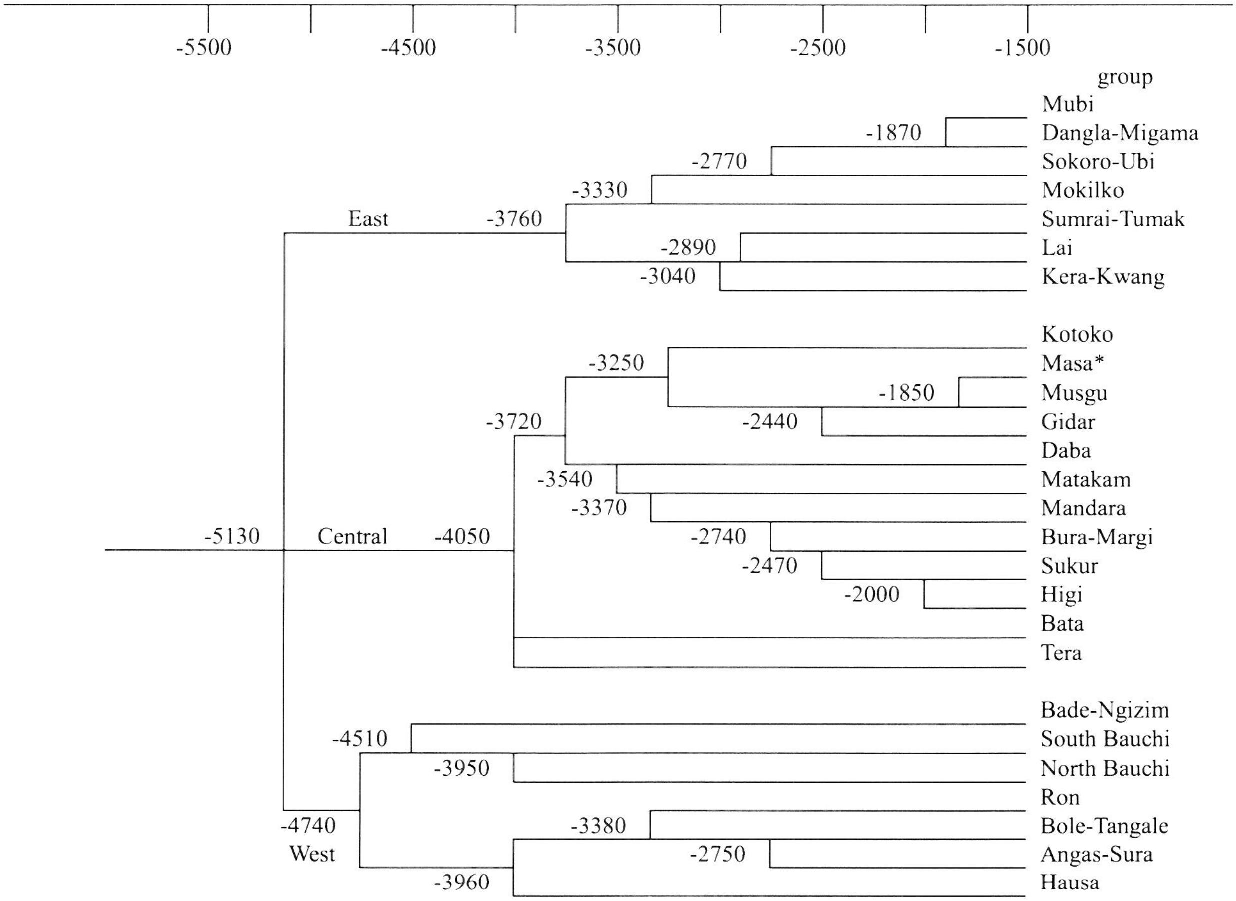
Berber (Blažek 2010, 2013)


-600
-400
-200
0
+200
+400
+600
+800
+1000
+1200
West
Zenaga
Šilha
+800
Tamazight
Figig
+590
Rif
+1220
Beni Snus
+790
+820
Matmata
Šawiya
North
-370
Zenati
+310
Mzabi
+950
Wargli
+150
+410
Sened
+770
Zwara
+940
Nefusa of Fasato
-680
-600
+50
Kabyle
Ghadames
Siwa
+510
Soqna
East
+930
Foqaha
-20
Augila
Ghat
+1050
Ahaggar
South
+250
Ayr


+1370
E. Awlem.
+630
Tadghaq
+1170
W. Awlem.

Awlem. Awlemmiden, E East, W West.

Chadic (Starostin 2010)


-5500
-4500
-3500
-2500
-1500
group
Mubi
-1870
Dangla-Migama
-2770
Sokoro-Ubi
-3330
Mokilko
East
-3760
Sumrai-Tumak
-2890
Lai
-3040
Kera-Kwang
Kotoko
-3250
Masa*
-1850
Musgu
-3720
-2440
Gidar
Daba
-3540
Matakam
-3370
Mandara
-5130
Central
-4050
-2740
Bura-Margi
-2470
Sukur
-2000
Higi
Bata
Tera
Bade-Ngizim
-4510
South Bauchi
-3950
North Bauchi
Ron
-3380
Bole-Tangale
-4740
West
-2750
Angas-Sura
-3960
Hausa

***Note**:
The close position of Masa to Musgu - see Tourneux 1990.

Acknowledgement:
The present study was prepared thanks to grants from the The Czech Science Foundation (GAČR), P406/12/0655 & GA15-12215S.

Václav Blažek
Department of Linguistics and Baltic Studies
Masaryk University
60200 Brno
Czech Republic
blazek@phil.muni.cz

MOTHER TONGUE
Journal of the Association for the Study of Language in Prehistory • **Issue XX • 2015**
In Memory of Harold Crane Fleming (1926-2015)

Was there a now-vanished branch of Nilo-Saharan on the Dogon Plateau? Evidence from substrate vocabulary in Bangime and Dogon

Roger Blench
McDonald Institute for Archaeological Research, Cambridge

ABSTRACT

The Nilo-Saharan languages are spread from Morocco to Central Tanzania, and are Africa's most widespread and internally diverse phylum. The fragmentary geography of Nilo-Saharan makes it more than likely that it was once more widespread in the areas that now lie between existing branches and that both individual languages and whole subfamilies have been assimilated. The paper proposes that a Nilo-Saharan substrate can be detected in Bangime, an isolate language spoken on the Dogon Plateau in Mali. A series of table are presented showing Bangime cognates with other branches of Nilo-Saharan. There is also a small set of words which show similarities to Dogon rather than Bangime. It is suggested that there was an independent branch of Nilo-Saharan present on the Plateau which was assimilated following the expansion of Bangime and Dogon.

Keywords; Nilo-Saharan; Dogon; Bangime; lexical comparison; substrate language

1. Introduction

The Nilo-Saharan languages are spread from Morocco to Central Tanzania, and are Africa's most widespread and internally diverse phylum. Today, its various branches are scattered across Africa, separated from one another by blocs of later, intrusive languages, notably Niger-Congo and Afroasiatic. The fragmentary geography of Nilo-Saharan makes it more than likely that it was once more widespread in the areas that now lie between existing branches and that both individual languages and whole subfamilies have been assimilated. The question then arises as to whether submerged Nilo-Saharan languages can be detected through the identification of substrates in languages spoken today, especially in Sahelian Africa. The Songhay cluster, spoken in Mali and Niger, is geographically and linguistically remote from its nearest relative, the Saharan languages, and the assumption must be that other Nilo-Saharan languages were once spoken across the terrain now within the boundaries of Niger and Nigeria. Drake, Blench et al. (2010) have argued that Nilo-Saharan expansion was driven by the abundance of aquatic resources in the Sahara at the beginning of the Holocene, i.e. some 11-10,000 years ago. At this period, mobile hunter-gatherers may have formed niche populations in many areas. With the development of agriculture and associated demographic shifts, many such foraging groups may have been absorbed by their more numerous neighbours.

One intriguing example illustrating this is an apparent Nilo-Saharan substrate in languages of the Dogon-speaking area of Mali. The Bandiagara Plateau is an arid rocky Plateau east of the Inland Niger Delta. Its main inhabitants are the Dogon peoples, a cluster of twenty or more related languages generally considered to be related to Niger-Congo (Hochstetler et al. 2004; Dogon and Bangime linguistics website[39]). **Map 1** shows a rather preliminary map of Dogon lects, based on Hochstetler et al. (2004), while more detailed maps of individual lects can be found at the Dogon languages website.

Among the Dogon live the Bangime, who speak a language which is not Dogon and which appears to be an isolate (Blench 2007, in press). Extended work on the Bangime language (Hantgan 2012, 2013) points even more strongly to its distinctiveness. The Bangime are encircled by the Dogon and have adopted their culture to the extent that they consider themselves Dogon. However, they must represent one of the layers of population on the Plateau prior to the expansion of the Dogon. There is some evidence for this in the presence of lexemes that resemble Bangime in the Dogon languages immediately adjacent to it, suggesting that there were formerly other languages related to Bangime which were assimilated by the Dogon.

Most Dogon lects are spoken today on the southern fringe of the Songhay-speaking area, and place names of likely Songhay origin occur throughout the region. We can therefore expect to find some Songhay borrowings in Dogon, although these are surprisingly few. However, detailed analysis of the Bangime lexicon shows a series of striking resemblances to common Nilo-Saharan lexemes, including branches now geographically remote from Mali. This paper will argue that;

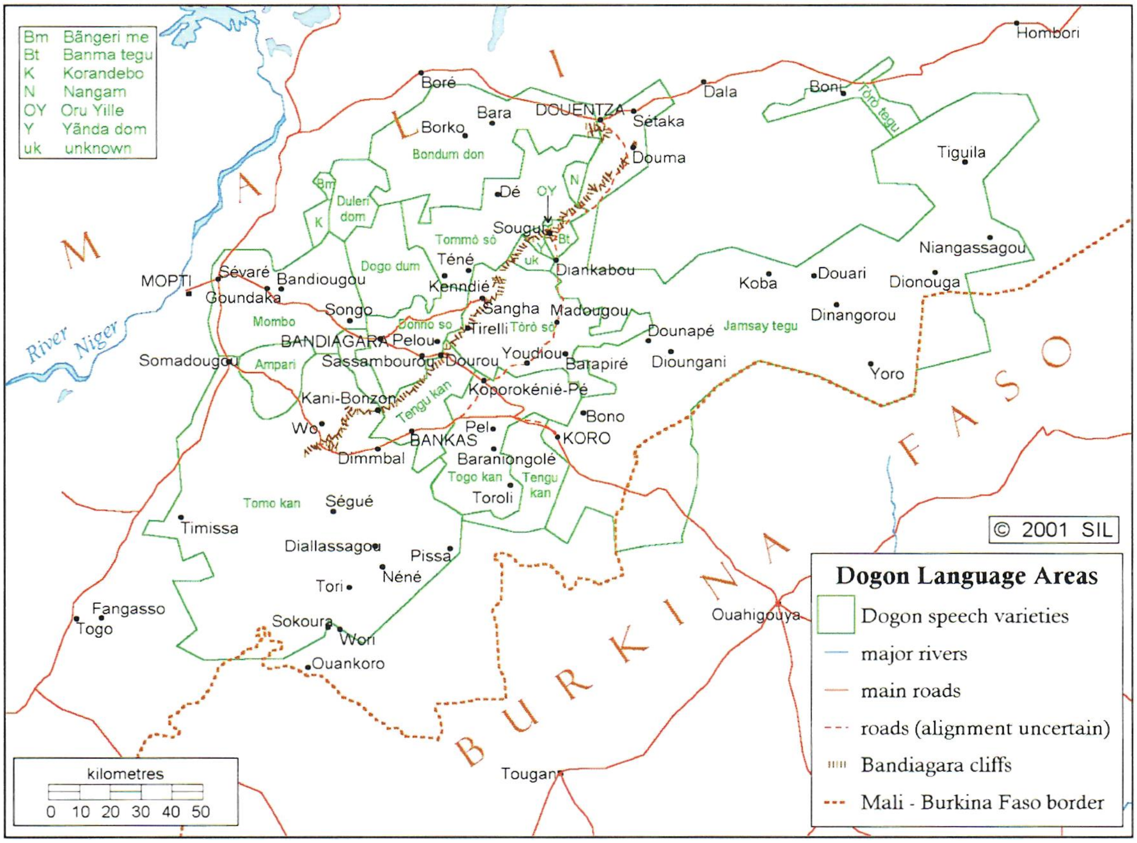
a) there was once a branch of Nilo-Saharan, now submerged, spoken on the Bandiagara Plateau
b) that this can be detected from residual lexicon in Bangime, some of which is also present in neighbouring Dogon languages
c) that there are also Nilo-Saharan lexemes in Dogon which point in the same direction
d) and that this substrate branch was an independent branch of Nilo-Saharan, showing no specific relationship to Songhay or other geographically close branches.

The evidence for this is primarily lexical. Bangime does not show any distinctive phonology and it noun morphology is very reduced. This does not exclude the possibility that more opaque similarities in grammar will be uncovered.

---

[39] Downloadable pdfs of all project documents in Dogon and Bangime linguistics are available at http://dogonlanguages.org

Map 1. Dogon lects


Bm Bãngeri me
Bt Banma tegu
K Korandebo
N Nangam
OY Oru Yille
Y Yãnda dom
uk unknown
M A L I
BURKINA FASO
River Niger
MOPTI
Sévaré
Goundaka
Bandiougou
Somadougou
BANDIAGARA
Pelou
Songo
Sangha
Tirelli
Kendié
Téné
Dé
Sougui
Diankabou
Madougou
Boré
Bara
Borko
DOUENTZA
Sétaka
Douma
Dala
Boni
Hombori
Tiguila
Niangassagou
Douari
Dionouga
Dinangorou
Koba
Dounapé
Dioungani
Yoro
Youdiou
Dourou
Sassambourou
Batapiré
Kani-Bonzon
Koporokénié-Pé
Bono
KORO
Pel
BANKAS
Baraniongolé
Toroli
Wo
Dimmbal
Ségué
Timissa
Diallassagou
Pissa
Néné
Tori
Fangasso
Togo
Sokoura
Wori
Ouankoro
Ouahigouya
Tougan
Bondum don
Duleri dom
Dogo dum
Tommò sò
Mombo
Ampari
Donno so
Tòrò sò
Tengu kan
Togo kan
Tengu kan
Tomo kan
Jamsay tegu
Tòrò tegu
Bm
K
OY
N
Bt
uk
© 2001 SIL
kilometres
0 10 20 30 40 50
Dogon Language Areas
Dogon speech varieties
major rivers
main roads
roads (alignment uncertain)
Bandiagara cliffs
Mali - Burkina Faso border

The reconstruction and evidence for proto-Nilo-Saharan is contested, to say the least. The two main published efforts, Bender (1997) and Ehret (2001) are thin on supporting evidence for their (very different) claims. The tables in this paper are therefore compiled from my own database, with supporting referenced citations for each form, to avoid the type of historical linguistics which simply assumes a starred form can be accepted without further discussion.

Hal Fleming devoted much of his scholarly career to the publication of data and the analysis of problematic African languages, and focused on Afroasiatic and Nilo-Saharan languages. I would like to think this study of an isolate and a proposed 'lost' branch of Nilo-Saharan would be very much in line with his interests.

2. Nilo-Saharan resemblances to Bangime

The tables in this section compare Nilo-Saharan roots with Bangime. Citations are from Hantgan (2012) or occasionally fieldwork by Roger Blench (2007). Acronyms represent shortened references to Nilo-Saharan sources (see Appendix).

1. #-da tree

Family	Subgroup	Language	Attestation	Gloss	Source
Kuliak		So	ad	tree	HC
Koman		Opo	tʸa	tree	Be83a
Gumuz			ɟá	tree	Ah04
ES	Ama	Ama	túmà	tree, firewood	Ki96
ES	Daju	Shatt	è(e)t	tree	Bo08
Saharan		Sagato	dā	wood	Pe87
Bangime			dʷàɛ̀	tree	Ha12

Commentary: Note, however the striking resemblance of Kuliak to Ethiopic *ʻəḍ* ʻtree;.

2. #-kuC- house

Family	Subgroup	Language	Attestation	Gloss	Source
Koman		Opuo	kù	house	Si13
Gumuz			gú-	place	Ah04
Bertha			ʃúlì	house	B-G07
Kunama		Kunama	ku.duma	house	Be01
Kuliak		Nyang'i	o, oik	house	He76
ES	Nilotic S	Nandi	kàà	house	CC01
Furan		Amdang	kuluk	*maison*	Wo10
Maban	Runga	Aiki	kùdù	*case*	No89
Mimi			kurule	*Haus*	LV39
CS	KA	Kresh	kóyò	*maison*	Bo00
CS	SBB	Yulu	gúù	*maison*	Bo00
Saharan	East	Beria	ke, ko	place	JC10
Saharan	West	Teda	koy	place	LeC50
Songhay	South	Zarma	hú	*maison*	BW94
Bangime			ko	house	Ha12

3. #-(k)olo(d)- egg

Family	Subgroup	Language	Attestation	Gloss	Source
Bertha		Mayu	húúhúlú	egg	B-G07
Kunama		Kunama	kokiɲa	egg	Be01
Kuliak		So	keɓc-at	egg	HC
ES	E Jebel	Gaam	kɔlɔd	egg	Ma04
Furan		Amdang	kʊrda	*oeuf*	Wo10
Maban		Aiki	kèdé	hen	No89
Saharan	East	Sagato	akora	egg	Pe87
Saharan	East	Beria	gʊ́nʊ́	*oeuf*	JC04
Songhay	South	Zarma	gùŋgùrí	*oeuf*	BW94
Bangime			kű	egg	Ha12

4. nose

Family	Subgroup	Language	Attestation	Gloss	Source
Shabo		Shabo	sonna	nose	Jo11
Koman		Gwama	ʃó(n)ʃ	nose	KR12
Koman		Tw'ampa	ʃim	odour, smell	DK
ES	Nubian	Meidob	èsèŋì	nose	We93
ES	Nubian	Nobiin	soriŋ	nose	We87
Furan		Amdang	siŋ	*sentir odorat*	Wo10
Maban	Runga	Aiki	simbo	*éternuer*	No89
CS	SBB	Baka	sɔ̀mɔ̀	*nez*	Bo00
CS	SBB	Gula	sɔ̀m	*nez*	Bo00
CS	SBB	Fer	sùm	*nez*	Bo87
CS	SBB	Kenga	òòmò	*nez*	Pa04
Saharan	East	Sagato	sāno	nose	Pe87
Saharan	East	Beria	sínā	*nez*	JC04
Bangime			sŭmbírí	nose	Ha12

5. tooth

Family	Subgroup	Language	Attestation	Gloss	Source
Koman		PK	*ʃeʔ	tooth	Be83
Gumuz		Guba	kʷosa	tooth	Ah04
Maban	Runga	Aiki	sàdí	*dent*	No89
CS	MM	PMM	*sí	tooth	WB99
CS	ME	Lese	ʊ́sɛ́	*dent*	DD
CS	KA	Kresh	sèsè	*dent*	Bo00
CS	SBB	Bongo	usu	*dent*	Bo00
CS	SBB	Yulu	óosə̀	*dent*	Bo00
Saharan	West	Manga	tímì	*dent*	Ja
Bangime			nɔ́ɔ́ ŋɔ́ síìn	tooth	Ha12

6. star

Family	Subgroup	Language	Attestation	Gloss	Source
Kuliak		Ik	ɗɔ́ɬɛát	star	He99
ES	E Jebel	Gaam	turi	moon	Ma04
ES	Temein	Temein	ɗúlìʈ	??	RCS
ES	Ama	Afitti	midí	star	Be00
Furan		Fur	dʊ́àl	moon	Wa10
Maban		Maba	bodur	*pleine lune*	Da03
CS	LN	Lendu	dyodyo	star	RCS
CS	MA	Mangbetu	né-túlú /é-	*étoile*	De92
CS	FS	Formona	ntudyu	star	Ha78
Saharan		Teda	uri	*lune*	LeC50
Bangime			tòrèmɛ́	star	Ha12

7. #-(b)uru(t)- cloud

Group	Subgroup	Language	Attestation	Gloss	Source
ES	Nilotic W	Shilluk	polo	cloud	He37
ES	Nilotic S	Nandi	póól	cloud	CC01
ES	Temein	Temein	kɔbɔ́rt̪ɛ̀t̪	cloud	RCS
Maban		Masalit	à-bírì	cloud	Ed91
CS	MM	Lugbara	ɓu	cloud	WB99
CS	FS	Sinyar	mbʊrbu	cloud	Ha78
Saharan	East	Beria	búrdū	*nuage*	JC04
Songhay	South	Hombori	búró	cloud	He
Songhay	South	Zarma	búrú	*nuage*	BW94
Bangime			póórò	cloud	Ha12

8. frog

Family	Subgroup	Language	Attestation	Gloss	Source
Koman		Anej	gɔ	frog	Be83
Gumuz		Yaso	eeguda	frog	Ah04
ES		Nara	gòò	frog	Ha00
ES	Nilotic W	Luo	ɔgwal	frog	Ca98
ES	Nilotic E	Camus	n.kook	frog	Vo82
ES	Daju	Liguri	ɓogox	frog	Th81
ES	Ama	Ama	gwɔ	frog	Be00
Fur		Fur	gɔrɔŋ	frog	Wa10
Maba		Maba	aŋgalag	*grenouille, crapaud*	Da03
Saharan	East	Beria	gʊ́rgá	*grenouille*	JC04
Saharan	East	Sagato	kaka	frog	Pe87
Saharan	West	Kanuri	kókó	frog	Cy94
Songhay	North	Tadaksahak	agúru	frog	He
Bangime			búgúrúù	frog	Ha12

9. #dona bite (v.)

Family	Subgroup	Language	Attestation	Gloss	Source
Koman		Opo	dɔ̄ŋ	to bite (snake)	Si13
Bertha		Mayu	θiɲa	to eat	B-G07
ES	Ama	Afitti	ŋwɔd-ɛ	to bite	Be00
ES	Taman	Ibiri	dam	to eat	Ed91b
Kadu		Tulishi	agí.dɔ́ɔ́nɔ	to bite	Sch94
Maban		Maba	nʤiŋa	*croquer, mâcher*	Da03
CS	ME	Lese	tàhɔ́	*mordre*	DD
CS		Sinyar	ɟunna	to bite	Ha78
CS	SBB	Sara	dùùn	*mordre*	Bo00
CS	SBB	Ngambay	tṍ	*mordre*	Bo00
CS	SBB	Kenga	dɔ̀ɔɲɔ̀	*mordre*	Pa04

10. #dona bite (v.)

Family	**Subgroup**	**Language**	**Attestation**	**Gloss**	**Source**
Bertha		Mayu	θiɲa	to eat	B-G07
ES		Dinik	ŋwɔd-ɛ	to bite	Be00
Kadu		Tulishi	agídɔ́ɔ́nɔ	to bite	Sch94
CS		Sara	dùùn	*mordre*	Bo00
CS		Ngambay	tṍ	*mordre*	Bo00
CS		Kenga	dɔ̀ɔɲɔ̀	*mordre*	Pa04
CS		Lese	tàhɔ́	*mordre*	DD
Bangime			táŋwá	to bite	Ha12

11. #nya(N)- to give

Family	**Subgroup**	**Language**	**Attestation**	**Gloss**	**Source**
ES		Nara	nin	give	RCS
ES	Surmic	Didinga	ɲa	give	RCS
ES	Nilotic S	Nandi	nakà	give liquid to	CC01
Kadu		Talasa	ná	give	Sch94
Maban		Maba	ɲu	*donner*	Da03
Fur		Fur	aní	give!	RCS
CS	MA	Mangbetu	nòò	*donner*	De92
Saharan		Manga	njò	give	Ja
Songhay		Tadaksahak	na	give	He
Bangime			ɲáw̃	give	Ha12

12. kill, die

Family	**Subgroup**	**Language**	**Attestation**	**Gloss**	**Source**
Kuliak		So	ɲal	to die	HC
ES	Temein	Temein	nyímùk		RCS
ES	Nyimang	Afitti	nì	kill	RCS
Saharan	East	Beria	níí, nóí	*mourir*	JC04
Saharan	West	Kanuri	nú-kin	die	Cy94
Bangime			yáá	die	Ha12

3. Nilo-Saharan resemblances to Bangime and Dogon

Apart from specific resemblances between Bangime and Dogon, there are a few lexical items attested in both, or attested only in Dogon and not in Bangime. The assumption is that when Dogon expanded, it also assimilated speakers of Nilo-Saharan languages and borrowed a small corpus of lexical items.

13. spear, war stick

Family	Subgroup	Language	Attestation	Gloss	Source
Kuliak		So	bɛl	club, stick	HC
Shabo		Shabo	ɓako	spear	Jo11
Koman		Gwama	pàí	stick	KR11
Bertha		Mayu	ber	spear, war	B-G07
ES	E Jebel	Molo	wər	spear	Be97
ES	Surmic	Mursi	ber	spear	TYO08
ES	Nilotic W	Pari	abɛɛla	stick	Sp60
ES	Nilotic E	Ongamo	nɑ.βɛrɛ	spear	VH89
ES	Tama	Sungor	bářá	spear, war	Ed91b
Kadu		Keiga	ɓáálá	spear	Sch94
Kadu		Mufo	ɓaala	stick	Sch94
Furan		Amdang	bal	*couteau*	Wo10
CS		Fer	bànd	*bâton*	Bo87
CS		Bongo	bél	*bâton*	PN
CS		Madi Lokai	pɛrɛ	stick	Bl00
Saharan	West	Manga	béllám	barbed spear	Jarrett (n.d.)
Songhay	North	Tadaksahak	bə́lleen	to fight	He
Bangime			bòřá	stick	Ha12
Dogon		Toro Tegu	béré	stick	He

The following tables show some of the likely borrowings into Dogon proper, not attested in Bangime.

The polysemy between 'war, stick, fight, spear' is well attested in Nilo-Saharan, and the connection with the Dogon forms for 'fight' etc. looks reasonable.

14. war, stick

Family	Subgroup	Language	Attestation	Gloss	Source
Shabo		Shabo	gum	stick	Jo11
Gumuz		Metemma	gʷomba	stick	Ah04
Kuliak		Nyang'i	kɛmon	war	He76
Kuliak		So	kɛm-an	quarrel, war	HC
ES	Surmic	Mursi	kaman	war	TYO08
ES	E Jebel	Aka	gumbuga	stick	Be98
CS	MM	Moru	kʊmba	war	WB99
Saharan	East	Sagato	ku	war	Pe87
Saharan	East	Sagato	kuma	shaft of spear	Pe87
Saharan	East	Beria	kú	*lance, fleche, guerre*	JC04
Saharan	West	Manga	kəríwù	war, battle	Ja
Songhay	South	Hombori	gòbò	stick	He
Songhay	South	Zarma	gòòbù	*bâton*	BW94
Dogon		Toro Tegu	kɔ̀mɔ́	fight, war	He
Dogon		Jamsay	kɔ̀mɔ́ táaⁿ	fight, war	He

15.	#turu	five			
Family	**Subgroup**	**Language**	**Attestation**	**Gloss**	**Source**
Shabo		Shabo	tuul[40]	five	Jo11
Koman		T'wampa	múdhèɗ	five	DK
Kuliak		Ik	tud-on	be five	He99
ES	Surmic	Majang	tuul	five	Jo11
ES	Taman	Tama	tɔ́r	six	Ed91b
Kadu		Keiga	tʊʊl	one	Sch94
Maban		Maba	túùr	five	Ed91a
CS	MM	Madi	tòú	five	Bl00
Saharan		Manga	úwù	*cinq*	Ja
Dogon		Toro Tegu	túrú	one	He
Dogon		Jamsay	túrú	one	He

Commentary: The shift to 'six' in Tama group languages is unusual, but the segmental similarity to 'five' elsewhere makes it likely. Keiga *tʊʊl* resembles other NS roots for 'five' strongly and if so would correspond to the same semantic shift in Dogon languages.

16.		fat, oil			**Attestation**						
Family	**Subgroup**	**Language**								**Gloss**	**Source**
Koman		T'wampa	k̲ʷ	á	l	ā	ɲ			fat	DK
Kunama		Kunama		a	ɲ	a				fat of meat	Be01
ES	Nilotic E	Bari			ɲ	i	r	e	t		Sp60
ES	Nubian	Debri		a	ɲ	e	r			fat	B-G89
ES	Ama	Ama			ɲ	u	m			oil	Ki96
Maba		Masalit			ɲ	a	m	i		oil	Ed91a
Songhay		Zarma			ɲ	óo	n			*oindre*	DC78
Dogon		Jamsay			n	ǔ	ŋ			oil	He
Dogon		Perge Tegu			n	ù	ŋg	ú		oil	He

---

[40] ?< Majang

17. #ƙVla horn

Family	Subgroup	Language	Attestation	Gloss	Source
Shabo		Shabo	ƙare	horn	Jo11
Koman		Opuo	kìw	horn	Si13
Gumuz		Guba	ƙəla	horn	Ah04
Kunama		Kunama	gìì'là	horn	Be01
ES		Nara	kè´lli	horn	Ha00
ES	Surmic	Chai	kɛre	horn	Yi01
ES	Nilotic S	Nandi	kùùyn.éét	horn	CC01
ES	Ama	Ama	gurʃì	horn	Be00
ES	Ama	Afitti	gʷùrtùn	horn	Be00
CS	MM	Moru	kʷɔyi	horn	WB99
CS	SBB	Gula Mere	kwàzù	*corne*	Bo00
CS	SBB	Bagirmi	kàʤà	horn	Bo00
Songhay	North	Tadaksahak	hillí	horn	He
Songhay	South	Hombori	hìlà	horn	He
Dogon		Toro Tegu	círá	horn	He
Dogon		Perge Tegu	kírɛ́	horn	He
Dogon		Nanga	kírâ	horn	He

18. lake, well river

Family	Subgroup	Language	Attestation	Gloss	Source
Koman		Gwama	ƙáálá	lake	KR12
Gumuz		Agelo Meti	kurɨma	lake	Ah04
Kuliak		So	kul[41]	lake, pool	HC
ES	Surmic	Majang	gɔrɔ	river	Jo11
ES	Nilotic W	Lango	kɔ̀t	rain	Ok12
ES	Nilotic E	Bari	kudu	rain	Sp60
ES	Nubian	Birgid	kolli	well n.	Th77
ES	Daju	Nyala	kore	rain	Th81
ES	Tama	Tama	kúl	water	Ed91b
Kadu		Miri	kiri	river	Sch94
Furan		Fur	koro	water	Wa10
Mabaan		Masalit	kúrtî	well	Ed91a
CS	MM	Moru	gʊlʊ	river	WB99
CS	SBB	Baka	kàrà	*mare*	Bo00
CS	SBB	Bongo	ngùlù	*eaux profondes*	PN
Saharan	East	Beria	kɛ́í	*petit lac*	JC04
Saharan	West	Kanuri	kulúwu	pool, pond, lake	Cy94
Songhay	South	Zarma	gòòrú	*rivière, ruisseau*	BW94
Dogon	Jamsay		góró	river	He
Dogon	Perge Tegu		góóró	river	He
Dogon	Nanga		góró	river	He

This might be a direct borrowing from Songhay rather than the retention of a Nilo-Saharan substrate.

---

[41] Unless < Karimojong

4. And the explanation is?

Chance would seem highly unlikely as an explanation for these resemblances. Two possible explanations can be suggested; that Bangime simply *is* a Nilo-Saharan language, or that it assimilated Nilo-Saharan lexicon when a now vanished branch of that phylum was assimilated. The first explanation is not very credible; Bangime shows almost no traces of Nilo-Saharan morphology; characteristics such as 'vanishing t/k' and three-way plural systems are absent. Moreover, the cognates with Nilo-Saharan do not appear to show any regular sound-correspondences. So a substrate is much more likely.

There is some evidence for a stratification of borrowings into Dogon and Bangime, which is likely to be a result of the later expansion of Dogon into the Bangime area. Dogon itself does have a marked feature highly reminiscent of Nilo-Saharan languages, the erosion of C_1 and then C_2 resulting in basic lexemes with VCV and VV canonical forms. Examples of this are;

	Tommo-So	Perge Tegu	Yanda Dom
right	ɲ̀ɲɛ́	ɲɛ̀ɛ́	ɲɛ̀

	Tommo-So	Jamsay	Togo Kan
give	óbó	óó	ó

This type of reduction is highly characteristic of Nilo-Saharan and not at all typical of Niger-Congo, where C_1 is almost always retained, and prefixes or stem-final syllable are eroded. However, this is not a claim that Dogon *is* Nilo-Saharan, indeed it clearly is not, to judge by its grammar and other morphology. This type of reduction could be purely typological. However, in the light of evidence for a Nilo-Saharan substrate, it does not seem unreasonable to suppose this reflects parallel processes in Dogon and the now-vanished branch of Nilo-Saharan, reflecting pervasive bilingualism in the past.

5. The place of the 'lost branch' within Nilo-Saharan

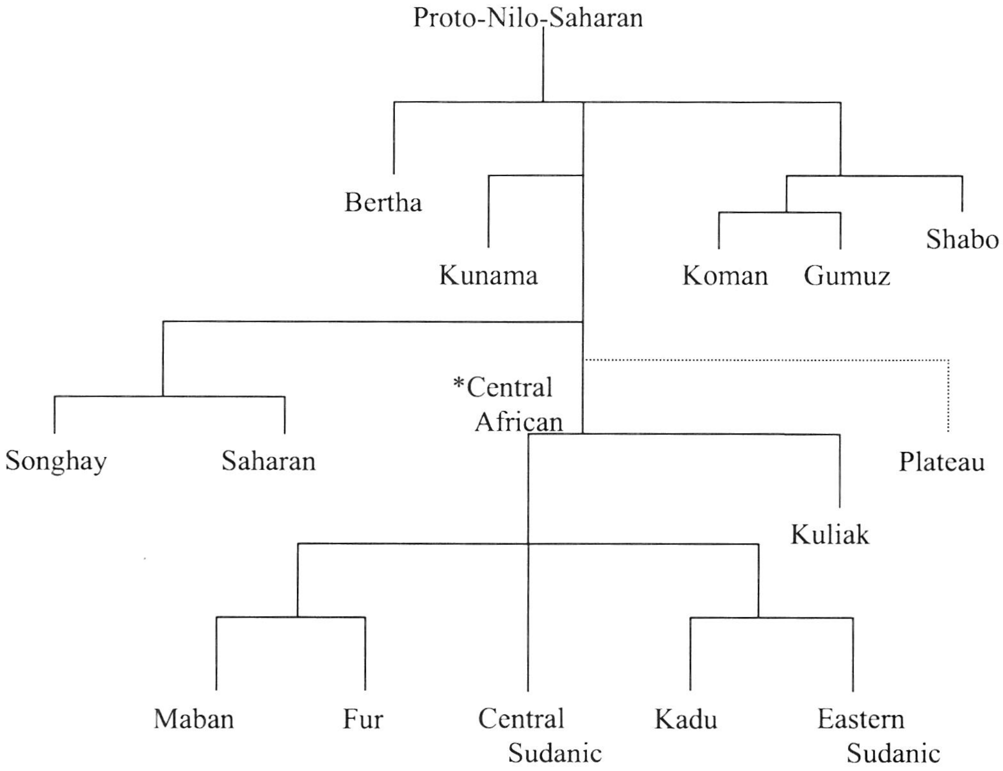
The tables of lexical data point to a Nilo-Saharan substrate in Bangime and to a lesser extent in Dogon, which derives from the assimilation of the 'lost branch' following the Dogon expansion. However, there is no evidence for a relationship with any specific branch of Nilo-Saharan, in particular none with Songhay, which is geographically closest. This argues that at the earliest phase of the expansion of Nilo-Saharan an independent group migrated westward from the heartland and established settlements on the Dogon Plateau. Bangime and its relatives may have been present at this time, but this can be only speculation. For this reason, I tentatively name this lost branch 'Plateau'.

Awaiting further analysis, Plateau is treated as an independent branch of Nilo-Saharan, diverging at roughly the same level as Saharan. The internal structure of Nilo-Saharan is highly controversial (see evaluation in Blench 2002) and cannot be discussed here. Both published proposals (Bender and Ehret) now seem very dated in the sense that they do not incorporate the extraordinary body of new data that has appeared in the last decades[42]. I have proposed a new internal structure for the phylum in various conference talks, and on this basis, **Figure 1** presents a new proposal for the structure of Nilo-Saharan incorporating a Plateau branch;

---

[42] Though Ehret (2014) continues to write as if his model of the phylum were widely accepted.

Figure 1. A hypothetical structure for Nilo-Saharan


Proto-Nilo-Saharan
Bertha
Kunama
Koman
Gumuz
Shabo
*Central African
Songhay
Saharan
Plateau
Kuliak
Maban
Fur
Central Sudanic
Kadu
Eastern Sudanic

It should be made very clear this is a first approach to the data. Lexical material on Bangime and Dogon is now quite abundant and it should be possible to find and evaluate further potential evidence for this hypothesis, especially in the field of grammar.

SHORT FORMS FOR BIBLIOGRAPHIC REFERENCES

Acronym	Expansion or source	Language treated
Ah04	Ahland (2004)	Gumuz dialects
B-G07	Benishangul-Gumuz Language Development Project (2007)	Bertha
Be81	Bender (1981)	Nilo-Saharan
Be83	Bender (1983)	Proto-Koman
Be97	Bender (1997)	Nilo-Saharan
Be98	Bender (1998)	Eastern Jebel
Be00	Bender (2000)	Afitti
Be01	Bender (2001)	Kunama
Bl00	Blackings (2000)	Madi
Bo87	Boyeldieu (1987)	Fer & Yulu
Bo93	Boyeldieu (1993)	Sara-Bongo-Bagirmi
Bo00	Boyeldieu (2000)	Sara-Bongo-Bagirmi
Bo08	Boyeldieu (2008)	Daju
BW94	Bernard & White-Kaba (1994)	Zarma
Ca98	Capen (1998)	Luo
CC01	Creider & Creider (2001)	Nandi
Cr81	Creissels (1981)	Songhay
Cy94	Cyffer (1994)	Kanuri
Da03	Dahab et al. (2003)	Maba
De92	Demolin (1992)	Mangbetu
Di88	Dimmendaal (1988)	Proto-Nilotic
DC78	Ducroz & Charles (1978)	Songhay Kaado
DD	Didier Demolin (ined.)	Lese
DK	Don Killian (ined.)	T'wampa
Ed91a	Edgar (1991a)	Maba group
Ed91b	Edgar (1991b)	Tama group
Gr63	Greenberg (1963)	Nilo-Saharan
Gr72	Gregersen (1972)	Kongo-Saharan
Ha78	Haaland (1978)	Formona
Ha00	Hayward (2000)	Nara
Ha12	Hantgan (2012)	Bangime
HC	Heine & Carlin (n.d.)	So
He	Jeffrey Heath	Dogon, Songhay
He37	Heasty (1937)	Shilluk
He76	Heine (1976)	Kuliak
He99	Heine (1999)	Ik
Ja	Jarrett (n.d.)	Manga
JC04	Jakobi & Crass (2004)	Beria
Jo11	Jordan et al. (2011)	Shabo

Acronym	Expansion or source	Language treated
Ki96	Kingston (1996)	Ama
KR11	Kievit & Robertson (2011)	Gwama
LeC50	Le Coeur (1950)	Teda
LV39	Lukas & Volckers (1939)	Mimi
Ma04	Mada et al. (2004)	Gaam
No89	Nougayrol (1989)	Aiki
Ok12	Okonye (2012)	Lango
Pa04	Palayer (2004)	Kenga
Pe87	Petracek (1987)	Sagato
PN	Nougayrol (ined.)	Bongo
RCS	Roland Stevenson mss.	Nilo-Saharan, Kordofanian
RMB	Author's fieldwork	
Ro82	Rottland (1982)	Southern Nilotic
Sch81a	Schadeberg (1981a)	Talodi Kordofanian
Sch81b	Schadeberg (1981b)	Heiban Kordofanian
Sch94	Schadeberg (1994)	Kadu
Si13	Silfhout (2013)	Opo
Sp60	Spagnolo (1960)	Pari
Th81	Thelwall (1977)	Birgid
Th81	Thelwall (1981)	Proto-Daju
TYO08	Turton et al. (2008)	Mursi
Vo82	Vossen, 1982	Proto-Eastern Nilotic
Vo82	Voßen (1982)	Eastern Nilotic
Vo88	Voßen (1988)	Maa
Vo97	Voßen (1997)	Khoisan
VH89	Vossen & Heine (1989)	Ongamo
Wa10	Waag (2010)	Fur
We27	Westermann (1927)	Western Sudanic
We87	Werner (1987)	Nobiin
We93	Werner (1993)	Meidob
Wo10	Wolf (2010)	Amdang
WB99	Watson & Boone (1999)	Moru Mangbetu
Yi01	Yigezu (2001)	Surmic

References

Ahland, Colleen A. 2004. *Linguistic variation within Gumuz: a study of the relationship between historical change and intelligibility.* MA Thesis. Arlington: UTA.

Bender, M.L. 1983a. Proto-Koman Phonology and Lexicon. *Africa and Ubersee*, 66(2): 259-297.

Bender, M.L. 1997. [2nd ed]. *The Nilo-Saharan languages: a comparative essay.* München: LINCOM Europa.

Bender, M.L. 1998. The Eastern Jebel languages of Sudan. II. Comparative lexicon. *Afrika und Übersee*, 81(1): 39-64.

Bender, M.L. 2000. Roland Stevenson's Nyimang and Dinik lexicon. *Afrikanistische Arbeitspapiere*, 63: 103–120.

Bender, M.L. 2001. *English-Kunama lexicon. Afrikanistische Arbeitspapiere (AAP).* 65: 201–253.

Benishangul-Gumuz Language Development Project 2007. *Bertha-English-Amharic Dictionary.* Assosa: Education Bureau/ Addis Ababa: SIL. [B-G07]

Bernard, Yves & Mary White-Kaba 1994. *Dictionnaire zarma-francais (Republique du Niger).* Paris: Agence de coopération culturelle et technique.

Blackings, M.J. 2000. *Ma'di English – English Ma'di Dictionary.* München: Lincom Europa.

Blench, Roger M. 2002. Besprechungsartikel: The classification of Nilo-Saharan. *Afrika und Übersee,* 83: 293-307.

Blench, Roger M. 2007. Baŋgi Me, a language of unknown affiliation in Northern Mali and its affinities. *Mother Tongue*, XII: 147-178.

Blench, Roger M. (in press) African language isolates. In: *Language Isolates.* Lyle Campbell, Alex Smith, and Thomas Dougherty eds. Routledge Language Family Series. London: Routledge.

Boyeldieu, Pascal 1987. *Les langues fer ("kara") et yulu du Nord Centrafricain: esquisses descriptives et lexiques.* Paris: Geuthner.

Boyeldieu, Pascale 2000. *Identité tonale et filiation des langues sara-bongo-baguirmiennes (Afrique centrale).* (SUGIA-Beiheft 10). Köln: Rüdiger Köppe Verlag.

Boyeldieu, Pascale 2008. Dadjo-Sila. *La qualification dans les langues africaines.* H. Tröbs, E. Rothmaler and K. Winkelmann eds. 57-70. Köln : Rüdiger Köppe Verlag.

Capen, Carole Jamieson 1998. *Bilingual Dholuo-English dictionary, Kenya.* Tucson AZ: Self-published.

Creider, J.T. et A.C. Creider 2001. *A dictionary of the Nandi language.* Köln: Rüdiger Köppe.

Cyffer, Norbert 1994. *English-Kanuri Dictionary.* Köln: Rudiger Köppe.

Dahab, Ali Abdoullay et al. 2003. *Lexique maba-français.* NDjaména, Tchad: Association SIL Projet maba.

Demolin, Didier 1992. *Le mangbetu, Etude phonétique et phonologique.* Thèse de doctorat, Université Libre de Bruxelles (Faculté de Philosophie et Lettres), 2 vols.

Dirk Kievit and Erika Robertson 2012. Notes on Gwama grammar. *Studies in African Linguistics,* 41:39-97.

Drake, Nick A., Roger M. Blench, Simon J. Armitage, Charlie S. Bristow, and Kevin H. White 2011. Ancient watercourses and biogeography of the Sahara explain the peopling of the desert. *Proceedings of the National Academy of Sciences of the United States of America*, 108(2):458-62.

Ducroz, Jean-Marie & Marie-Claire Charles 1978. *Lexique soŋey (songay)- francais: parler kaado du Gorouol*. Paris: L'Harmattan.

Edgar, John T. 1991a. *Maba-group lexicon*. Berlin: Reimer.

Edgar, John T. 1991b. First Steps Toward Proto-Tama. In: *Proceedings of the Fourth Nilo- Saharan Conference. Bayreuth 30 sept.-2 oct. 1989*. M.L. Bender ed. 111-131. Hamburg: Buske.

Ehret, Christopher 2001. *A historical-comparative reconstruction of Nilo-Saharan*. Köln: Rudiger Köppe.

Ehret, Christopher 2014. *A guide to cognate discovery in Nilo-Saharan*. In: Language and history oin the light of reconstruction. Jörg Adelberger & Rudolf Leger eds. 9-92. Köln: Rudiger Köppe.

Haaland, Gunnar. 1978. Ethnic Groups and Language Use in Darfur. In: *Aspects of Language in the Sudan*. Thelwall, Robin (ed.) 181-199. Ulster: The New University of Ulster.

Hantgan, Abbie 2012. *Bangime dictionary*. Online ms.

Hantgan, Abbie 2013. *Aspects of Bangime Phonology, Morphology, and Morphosyntax*. Ph.D. Indiana University.

Hayward, Richard J. 2000. Observations on tone in the Higir dialect of Nara. In: Rainer Vossen, Angelika Mietzner, and Antje Meissner (eds) *"Mehr als nur Worte…" Afrikanistische Beiträge zum 25. Gerburtstag von Franz Rottland*. 247-267. Rüdiger Köppe Verlag: Köln

Heasty, J.A. 1937. *English-Shilluk, Shilluk-English dictionary*. Doleib Hill (Sudan): Doleib Hill, Anglo-Egyptian Sudan: American Mission.

Heine, Bernd 1976. *The Kuliak Languages of Eastern Uganda*. Nairobi: East African Publishing House.

Heine, Bernd 1999. *Ik Dictionary*. Nilo-Saharan - Linguistic Analyses and Documentation, 15. Köln: Rüdiger Köppe.

Heine, Bernd & Eithne Carlin nd. *So dictionary*. Electronic ms.

Hochstetler, J. Lee, Durieux, J.A. & E.I.K. Durieux-Boon 2004. *Sociolinguistic Survey of the Dogon Language Area*. SIL International. Available at: http://www.sil.org/silesr/2004/silesr2004-004.pdf

Jakobi, Angelika & Joachim Crass 2004. *Grammaire du beria (langue saharienne)*. Köln: Rüdiger Köppe.

Jordan, L., Mohammed, H. & Netzley, J. 2007. *Sociolinguistic Survey of Shabo*. Manuscript. [includes lexical spreadsheet as appended document]

Kievit, Dirk and Erika Robertson 2012. Notes on Gwama grammar. *Studies in African Linguistics,* 41:39-97.

Killian, Don n.d. *Uduk dictionary*. ms. available from the author.

Kingston, Abi 1996. *Ama phonology, grammar sketch, wordlist*. unpublished ms. Khartoum.

Le Coeur, C. 1950. *Dictionnaire ethnographique téda, précédé d'un lexique français-téda*. Dakar: IFAN.

Lukas, Johannes et O. Völckers 1938/39. G. Nachtigal's Aufzeichnungen über die Sprache der Mimi in Wadai. *Zeitschrift für Eingeborenen-Sprachen*, 29. 2:145-154.

Mada, lHashim Orta Adaw, Alawia Omer Yousif, Saf Adin Hamid Ateeb & Annaim Karaka Farajalla Yasin 2004. *Gaahmg-English Dictionary*. ms. Juba: SIL Sudan.

Nougayrol, Pierre 1989. *La langue des Aiki dits Rounga (Tchad et République Centrafricaine): esquisse descriptive et lexique.* Paris: Librairie Orientaliste Paul Geuthner pour la Laboratoire de Langues et Civilisations à Tradition Orale (LACITO).

Okonye, Godman 2012. *Lango-English Dictionary*. Kampala: Fountain.

Palayer, Pierre 2004. *Dictionnaire Kenga (Tchad).* (Afrique et Langage, 6.) Louvain-Paris: Paris: Peeters.

Petráček, Karel 1987. Berti or Sagato-a (Saharan) Vocabulary. *Afrika und Übersee,* 70: 163-193.

Schadeberg, Thilo C. 1994. Comparative Kadu wordlists. *Afrikanische Arbeitspapiere*, 40: 11-48.

Silfhout, Marijke van 2013. *Opuo: towards a phonology*. BA Dissertation, Leiden University.

Spagnolo, L. 1960. *Bari-English-Italian Dictionary*. Verona: Missioni Africane.

Thelwall, Robin 1978. Lexicostatistical relations between Nubian, Daju, and Dinka. In: Leclant, J. et J. Vercoutter (eds.), *Études nubiennes. Colloque de Chantilly, 2-6 juillet 1975*. 265-281. Cairo: IFAO.

Thelwall, Robin 1981. *The Daju language group: lexicostatistics and lexical reconstruction*. Ph.D. New University of Ulster.

Turton, David, Moges Yigezu & Olisarali Olibui 2008. *Mursi-English-Amharic Dictionary*. Addis Abeba: Addis Ababa: Culture and Art Society of Ethiopia.

Voßen, Rainer 1982. *The Eastern Nilotes: Linguistic and Historical Reconstructions.* Kölner Beitrage zur Afrikanistik, Volume 9. Berlin: Reimer.

Voßen, Rainer and Bernd Heine 1989. The Historical Reconstruction of Proto-Ongamo-Maa: Phonology and Vocabulary. In: M.L. Bender (ed.) *Topics in Nilo-Saharan Languages*. 181-217. Hamburg: Helmut Buske.

Waag, Christine 2010. *The Fur verb and its context*. (Nilo-Saharan: linguistic analyses and documentation, 26.) Köln: Rüdiger Köppe.

Watson, Richard L. and Boone, Douglas W. 1999. *Moru - Ma'di survey report*. SIL Electronic Survey Reports 1999-001.

Werner, Roland 1987. *Grammatik des Nobiin (Nilnubisch)*. Nilo-Saharan Studies vol. 1. Hamburg: Helmut Buske Verlag.

Werner, Roland 1993. *Tidn-aal: A study of Midob (Darfur-Nubian)*, Berlin: Frankfurter Studien zur Afrikanistik 17. [We93]

Wolf, Katharina 2010. *Une enquête sociolinguistique parmi les Amdang (mimi) du tchad.* Rapport technique. Ndjamena, Tchad : SIL

Yigezu, Moges 2001. *A comparative study of the phonetics and phonology of Surmic languages*. Ph.D. Université Libre de Bruxelles.

MOTHER TONGUE
Journal of the Association for the Study of Language in Prehistory • **Issue XX • 2015**
In Memory of Harold Crane Fleming (1926-2015)

Etymological Notes I: Indo-European and Nostratic

Allan R. Bomhard
Charleston, SC USA

Dedicated to the fond memory of my friend, colleague, and mentor, Hal Fleming.

ABSTRACT: In this article, I propose several new Indo-European etymologies, as well as comment on one Nostratic etymology originally suggested by Václav Blažek. Note: The Proto-Indo-European forms cited in this article are reconstructed in accordance with the glottalic model of Proto-Indo-European consonantism proposed by Gamkrelidze—Ivanov and Hopper.

Keywords: Armenian, Germanic, Hittite, Proto-Indo-European, Proto-Nostratic

1. Hittite *pakkušš-* 'to pound, to crack, to crush, to grind'

Kloekhorst (2008:618—619) lists Hittite *pakkušš-* (vb.) 'to pound, to crack, to crush, to grind (grain)', (adj.) *pak(kuš)šuwant-* 'cracked (?)', (n.) ($^{\text{GIŠ}}$)*pakkuššuwar* 'a wooden implement used to crack or crush cereals' (see also *Chicago Hittite Dictionary*, P, pp. 58—59; Friedrich 1991:155). Kloekhorst mentions possible etymologies suggested by Oettinger and Janda and rejects them. He concludes by stating "[f]urther unclear". Melchert (1994:330), on the other hand, cites Lydian *(we)-baq-(ẽn)-* 'to trample on' as a probable Anatolian cognate.

Now let us look at Germanic, where we find the following forms: Old English *feohtan* 'to fight, to combat, to strive; to attack, to fight against', *feoht* 'fight, battle; strife'; Old Frisian *fiuchta*, *fiochta* 'to fight'; Old Saxon *fehtan* 'to fight'; Dutch *vechten* 'to fight'; Old High German *fehtan* 'to fight, to battle, to combat' (New High German *fechten* 'to fight, to fence'), *gifeht*, *fehta* 'fight, battle, combat' (New High German *Fechten* 'fighting, fencing'); all of which can be derived from Proto-Germanic **feχtanan* 'to fight' (cf. Boutkan—Siebinga 2003:117 **fe(u)hta-*; Klein 1971:281; Kluge—Mitzka 1967:188 **fiuhtan* [instead of **fĕhtan*]; Kluge—Seebold 1989:206 **feht-a-*; Kroonen 2008:134 **fehtan-* 'to fight'; Onions 1966:354—355 West Germanic **feχtan*; Orël 2003:96—97 **feχtanan*; Vercoulie 1898:309). The Germanic forms are frequently compared with Latin *pectō* 'to comb, to card'; Greek πέκω 'to comb', πεκτέω 'to shear, to clip'; etc. (cf. Rix 2001:467), but this comparison is rather problematic from a semantic point of view, and this has led several scholars to express doubts about it (cf. Kroonen 2008:134; Onions 1966:355; etc.). A better etymology is possible.

We can trace both the Hittite and West Germanic forms back to Proto-Indo-European *$p^{h}ek^{wh}$-/*$p^{h}ok^{wh}$- 'to strike, to hit, to beat, to pound'. The original meaning was essentially preserved in Anatolian. For Germanic, however, we have to assume that there was a semantic shift from 'to strike, to hit, to beat, to pound' to 'to fight'. As pointed out by Buck (1949:1370—1372, no. 20.11), this is a rather common semantic development. Moreover, the phonetics do not present any problems, inasmuch as Proto-Indo-European *-k^{wh}- > *-χ- before *-*t*- in Proto-Germanic (cf.

Proto-Germanic **naχtz* 'night' [< **nok*^{wh}*t*^{h}*s*] > Gothic *nahts* 'night'; Old Icelandic *nátt*, *nótt* 'night'; Old English *niht*, *næht*, *neaht* 'night'; Old Saxon *naht* 'night'; Old High German *naht* 'night'; etc.).

2. Armenian *kat*^{h}*n* 'milk'

Armenian *kat*^{h}*n* 'milk' (dialectal variants include: Suč^{h}ava *gat*^{h}*ə*; Tbilisi *kát*^{h}*ə*; Łabarał, Goris, Šamaxi *kát*^{h}*nə*; Loṙi *kat*^{h}*ə*; Agulis *kaxc*^{h}; Havarik *kaxs*; Areš *kaxs*; Mełri *kaxc*^{h}; Karčewan *kaxc*^{h}) has been compared with Greek γάλα 'milk', Latin *lac* 'milk', etc. (cf. Martirosyan 2008: 294—296 [with relevant literature]). However, trying to account the Armenian forms on the basis of their alleged Greek and Latin cognates presents almost insurmountable phonological difficulties, and the explanations put forward to try to overcome these difficulties are too convoluted to be credible (for details, see Martirosyan 2008:294—296). Yet, no convincing alternative etymology has been advanced to date.

A Proto-Indo-European nominal stem **k'*^{w}*et*^{h}*-u-* 'glutinous secretion, viscous discharge: gum, resin, sap' (cf. Pokorny 1959:480 **g*^{u}*et-* 'resin') has been reconstructed on the basis of the following forms: Sanskrit *játu-* 'lac, gum'; Latin *bitūmen* 'pitch, asphalt' (borrowed from either Sabellian or Celtic); Middle Irish *beithe* 'birch-tree' (borrowed from Brittonic Celtic); Old Icelandic *kváða* 'resin'; Faroese *kváða* 'viscous fluid from a cow's teat'; Norwegian *kvaade*, *kvae* 'resin; watery fluid from a pregnant cow's udder', (dial.) *kvæde* 'birch sap'; Old English *cwidu*, *cweodo*, *cwudu* 'resin, gum; cud, mastic'; Old High German *quiti*, *kuti* 'glue'; etc. Note: The Proto-Indo-European form cited above may be from an unattested verb **k'*^{w}*et*^{h}*-*/**k'*^{w}*ot*^{h}*-* 'to ooze (out), to seep (out)', or something quite similar in meaning.

Derivation of Armenian *kat*^{h}*n* 'milk' from Proto-Indo-European **k'*^{w}*et*^{h}*-u-* 'glutinous secretion, viscous discharge: gum, resin, sap' presents no major phonological difficulties, and the semantics are quite plausible in view of Faroese *kváða* 'viscous fluid from a cow's teat' and Norwegian *kvaade*, *kvae* 'resin; watery fluid from a pregnant cow's udder'. Hence, I believe that this is a far better etymology than the comparison with Greek γάλα 'milk', Latin *lac* 'milk', etc.

3. Proto-Nostratic root **ʔoy-*

In his 1999 book *Numerals. Comparative-Etymological Analysis and Their Implications*, Václav Blažek proposes a rather nice Nostratic etymology for one of the Proto-Indo-European words for the number 'one': **ʔoy-* (extended forms: **ʔoy-no-*, **ʔoy-wo-*, **ʔoy-k*^{h}*o-*). He specifically compares forms from Samoyed and Altaic (these are listed below), as well as the following Ethiopian Semitic forms (this is an expanded list) (Blažek 1999:90 and 156): Ethiopic / Geez *ˀayaya* [**አየየ**] 'to make equal, to even out, to be equal', *taˀayaya* [**ተአየየ**] 'to be equal, to be comparable, to be compared, to be paired', *ˀayāt* [**አያት**] 'equality, likeness, resemblance, analogy, allegory, example, conformity, harmony', *ˀayāy* [**አያየ**] 'equal, associate, likeness, image, appearance'; Tigre *ˀayay* 'relative, kinsman'; Amharic *ayaya* 'comrades, partners who are equal in age and status' (cf. D. Cohen 1970— :16—17 *'yy; Leslau 1987:51). In a later paper, Blažek (2012:119) also adds Dravidian forms to this etymology.

I would remove the Ethiopian Semitic forms included by Blažek and replace them with forms from Arabic and Berber, and I would also remove the Dravidian forms. Accordingly, I would rewrite and expand this etymology as follows:

Proto-Nostratic root *_ʔoy-_:
(vb.) *_ʔoy-_ 'to be by oneself, to be alone';
(n.) *_ʔoy-a_ 'solitude, aloneness'; (adj.) 'single, alone; one'

A. Proto-Afrasian *_ʔVy-_ 'single, alone; one': Proto-Semitic *_ʔay-am-_ '(to be) single, alone' > Arabic _ˀāma_ (root /ˀym/) 'to be without a husband or a wife (single, divorced, widowed); to lose one's wife, to become a widower; to lose one's husband, to become a widow', _ˀayma_ 'widowhood', _ˀayyim_ (pl. _ˀayāmā_) 'unmarried man or woman; widow, widower'. D. Cohen 1970— :17 *'ym; Biberstein-Kazimirski 1875.1:95—96; Steingass 1884:99—100; Wehr 1976:37; Zammit 2002:85. The following Berber forms may belong here as well, assuming development from Pre-Proto-Berber *_ʔ-y-w_ > *_y-y-w_ > Proto-Berber (m.) *_yīw-ă̄n_, (f.) *_yīw-ă̄t_ (Prasse 1974:404) or (m.) *_iyyaw-an_, (f.) *_iyyaw-at_ (Militarëv 1988:101—107), participle meaning 'being alone, sole, unique' (> 'one'): Tuareg _yən_ (f. _yət_) 'one; a certain one, someone'; Siwa _əğən_, _iğən_ (f. _əğət_, _iğət_) 'one'; Nefusa _uğun_ (f. _uğət_) 'one'; Ghadames _yun_ (f. _yut_) 'one'; Wargla _iggən_ (f. _iggət_) 'one'; Mzab _iggən_ (f. _iggət_) 'one'; Tamazight _yiwən_, _yun_ (f. _yiwt_, _yut_) 'one'; Tashelhiyt / Shilha _yan_ (f. _yat_) 'one'; Riff _iğ_, _iğən_ (f. _ict_), _iwən_ (f. _iwət_) 'one'; Kabyle _yiwən_ (f. _yiwet_) 'one'; Chaoia _iji_ (f. _ijt_) 'one'; Zenaga _yun_ 'one'. Haddadou 2006—2007:224.

B. Proto-Indo-European *_ʔoy-_ 'single, alone; one' (with non-apophonic _-o-_) (extended forms: *_ʔoy-no-_, *_ʔoy-wo-_, *_ʔoy-k^ho-_): (A) *_ʔoy-no-_: Latin _ūnus_ 'one' [Old Latin _oinos_]; Umbrian _unu_ 'one'; Old Irish _óen_, _óin_ 'one'; Welsh _un_ 'one'; Gothic _ains_ 'one'; Old Icelandic _einn_ 'one'; Faroese _ein_ 'one'; Danish _en_ 'one'; Norwegian _ein_ 'one'; Old Swedish _en_ 'one'; Old English _ān_ 'one; alone, sole, lonely; singular, unique'; Old Frisian _ān_, _ēn_ 'one'; Old Saxon _ēn_ 'one'; Dutch _een_ 'one'; Old High German _ein_ 'one' (New High German _ein_); Albanian _një_ 'one'; Lithuanian _víenas_ (with unexplained initial _v-_) 'one; alone'; Latvian _viêns_ 'one'; Old Prussian _ains_ 'one'; Old Church Slavic _inъ_ 'some(one), other'; Russian Church Slavic _inokyj_ 'only, sole, solitary'; Russian _inój_ [иной] 'different, other' — it is also found in Greek οἴνη, οἰνός 'roll of one (in dice)'. (B) *_ʔoy-wo-_: Avestan _aēva-_ 'one'; Old Persian _aiva-_ 'one' — it is also found in Greek οἶος 'alone, lone, lonely' (Cyprian οἶ+ος). (C) *_ʔoy-k^ho-_: Sanskrit _éka-ḥ_ 'one'; Mitanni ("Proto-Indic") _aika-_ 'one'. Pokorny 1959:286 *_oi-nos_ 'one'; Walde 1927—1932.I:101*_oi-nos_; Mann 1984—1987:866 *_oinos_, _-ā_ 'one; unit'; Watkins 1985:45 *_oi-no-_ and 2000:59 *_oi-no-_ 'one, unique'; Mallory—Adams (eds.) 1997:398—399 *_oi-no-s_ ~ *_oi-u̯o-s_ ~ *_oi-ko-s_ (or *_$h_1$oi-no-s_ ~ *_$h_1$oi-u̯o-s_ ~ *_$h_1$oi-ko-s_) and 2006:61 *_$h_1$oi-no-s_ 'one'; Gamkrelidze—Ivanov 1995:741 *_oi-_ 'one' (extended forms: *_oi-no-_, *_oi-k^ho-_, *_oi-wo-_); Boisacq 1950:691 and 692; Frisk 1970—1973.II:364 *_oino-s_ and II:367 *_oiu̯o-s_; Chantraine 1968—1980.II:784 and II:786; Hofmann 1966:228; De Vaan 2008:642 *_Hoi-no-_; Walde—Hofmann 1965—1972.II:821—823; Ernout—Meillet 1979:748—749; Lindsay 1894:409; Sihler 1995:405 *_oy-_: *_oy-no-_, *_oy-wo-_, and possibly *_oy-ko-_; Matasović 2009:304—305; Kroonen 2013:11 Proto-Germanic *_aina-_ < Proto-Indo-European *_Hoi-Hn-o-_; Lehmann 1986:17 *_oy-no-_ 'sole, alone; one'; Feist 1939:24 *_oi̯-no-_; Falk—Torp 1903—1906.I:137, 1909:3, and 1910—1911.I:190—192; De Vries 1977:97; Onions 1966:627 Common Germanic *_ainaz_; Klein 1971:513 *_oi-nos_; Kluge—Mitzka 1967:157—158; Kluge—Seebold 1989:169 Proto-Germanic *_aina-_; Orël 1998:304—305 and 2003:9 Proto-Germanic *_ainaz_; Fraenkel 1962—1965.II:1239—1240; Smoczyński 2007.1:747—748 Proto-Baltic *_ai̯-na-_ < Proto-Indo-

European _*H_1oi̯-no-_; Derksen 2008:212 and 212—213 _*HiH-no-_; Mayrhofer 1956—1980.I:126 _*oi-(ko-)_; Burrow 1973:248; Szemerényi 1996:222. Notes: (1) According to Kloekhorst (2008:181—182) and Puhvel (1984— .1/2:73), Hittite _a-an-ki_ 'once' is related to the above forms. Kloekhorst derives it from Proto-Indo-European _*Hoi̯onki_. (2) Latin _aequus_ 'level, equal', on the other hand, does not belong here (cf. De Vaan 2008:27).

C. Uralic: Proto-Samoyed _*oj-_ ~ _*ə̂j-_ 'one' > Tavgi Samoyed / Nganasan _˜o'ai_ 'one' (gen. _˜oadaŋ_), _˜o'ałâ_ 'single, alone', _˜o'ałei'_, _˜o'adu'_ 'once'; Motor _öjläk_ (?) 'one' (only in independent use). Castrén 1854:193 and 1855:45; Helimski 1997:145, 326 (no. 798) (Motor) and 1998:500, table 16.9, (Nganasan) _(ŋuʔ)əiʔ_ ~ _(ŋuʔ)əj_ 'one', numerical adverb _(ŋuʔ)əδuʔ_ 'once'. Note: Not related to Proto-Samoyed _*op_ 'one' (cf. Blažek 1999:90).

D. Altaic: Tungus: Oroch _ojoke_ 'some, one'.

Buck 1949:13.33 alone, only (adj., adv.).

References

Biberstein-Kazimirski, Albert de

1875 *Dictionnaire arabe-français [Arabic-French Dictionary]*. 4 vols. Revised and corrected by Ibed Gallab. Cairo: Imprimerie V. R. Égyptienne A. Boulac.

Blažek, Václav

1999 *Numerals. Comparative-Etymological Analysis and Their Implications*. Brno: Masarykova Univerzita v Brně.

2012 "On Nostratic 'one'," *Mother Tongue* XVII:119—124.

Boisacq, Émile

1950 *Dictionnaire étymologique de la langue grecque: étudiée dans ses rapports avec les autres langues indo-européennes [Etymological Dictionary of the Greek Language: Studied in its Relationships with the Other Indo-European Languages]*. 4th edition, with an index by Helmut Rix (1st edition 1916). Heidelberg: Carl Winter.

Bomhard, Allan R.

1984 *Toward Proto-Nostratic: A New Approach to the Comparison of Proto-Indo-European and Proto-Afroasiatic*. (= *Current Issues in Linguistic Theory*, vol. 27.) Amsterdam: John Benjamins.

1996 *Indo-European and the Nostratic Hypothesis*. Charleston, SC: SIGNUM Desktop Publishing.

2008 *Reconstructing Proto-Nostratic: Comparative Phonology, Morphology, and Vocabulary*. 2 vols. Leiden and Boston, MA: E. J. Brill.

2014 *A Comprehensive Introduction to Nostratic Comparative Linguistics: With Special Reference to Indo-European*. First edition, 4 vols., 2,258 pp. Open-Access publication.

[2015] [Second revised, corrected, and expanded edition, 4 vols., 2,530 pp.]

2016 "The Glottalic Model of Proto-Indo-European Consonantism: Re-igniting the Dialog". *Slovo a slovesnost*.

To appear "The Origins of Proto-Indo-European: The Caucasian Substrate Hypothesis".

Bomhard, Allan R., and John C. Kerns

1994 *The Nostratic Macrofamily: A Study in Distant Linguistic Relationship*. Berlin, New York, NY, and Amsterdam: Mouton de Gruyter.

Boutkan, Dirk and Sjoerd Michiel Siebinga

2005 *Old Frisian Etymological Dictionary*. Leiden and Boston, MA: E. J. Brill.

Brown, Francis, S. R. Driver, and Charles A. Briggs

1907 *A Hebrew and English Lexicon of the Old Testament*. Reprinted 1978. Oxford: Oxford University Press.

Buck, Carl Darling

1949 *A Dictionary of Selected Synonyms in the Principal Indo-European Languages*. Chicago, IL: University of Chicago Press.

Burrow, Thomas

1973 *The Sanskrit Language*. 3rd edition. London: Faber & Faber.

Castrén, M[atthias] Alexander

1854 *Grammatik der samojedischen Sprachen [Grammar of the Samoyed Languages]*. Edited by Anton Schiefner. St. Petersburg: Buchdruckerei der Kaiserlichen Akademie der Wissenschaften.

1855 *Wörterverzeichnisse aus de samojedischen sprachen [Vocabularies of the Samoyed Languages]*. Edited by Anton Schiefner. St. Petersburg: Buchdruckerei der Kaiserlichen Akademie der Wissenschaften.

Chantraine, Pierre

1968—1980 *Dictionnaire étymologique de la langue grecque. Histoire des mots. [Etymological Dictionary of the Greek Language. History of Words]*. 2 vols. Paris: Klincksieck.

Clark Hall, J. R.

1984 *A Concise Anglo-Saxon Dictionary*. 4th edition. Toronto: University of Toronto Press.

Cohen, David

1970— *Dictionnaire des racines sémitiques [Dictionary of Semitic Roots]*. The Hague: Mouton, and Leuven: Peeters.

De Vaan, Michiel

2008 *Etymological Dictionary of Latin and the Other Italic Languages*. Leiden and Boston, MA: E. J. Brill.

De Vries, Jan

1962 *Altnordisches etymologisches Wörterbuch [Old Norse Etymological Dictionary]*. 2nd edition. Leiden: E. J. Brill.

[1977] [Reprinted.]

Derksen, Rick

2008 *Etymological Dictionary of the Slavic Inherited Lexicon*. Leiden and Boston, MA: E. J. Brill.

Ernout, Alfred, and Antoine Meillet

1979 *Dictionnaire étymologique de la langue latine: Histoire des mots [Etymological Dictionary of the Latin Language: History of Words]*. 4th edition. Paris: Klincksieck.

Falk, Hjalmar, and Alf Torp

1903—1906 *Etymologisk Ordbog over det Norske og det Danske Sprog [Etymological Dictionary of the Norwegian and Danish Languages]*. 2 vols. Kristiana: Forlagt af H. Aschehoug & Co. (W. Nygaard).

1909 *Wortschatz der germanischen Spracheinheit [Vocabulary of the Germanic Language Group]*. (= Vol. 3, 4th edition of August Fick, *Vergleichendes Wörterbuch der indogermanischen Sprachen [Comparative Dictionary of the Indo-European Languages]*.) Göttingen: Vandenhoeck & Ruprecht.

1910—1911 *Norwegisch-Dänisches etymologisches Wörterbuch [Norwegian-Danish Etymological Dictionary]*. 2 vols. Heidelberg: Carl Winter.

Feist, Sigmund

1939 *Vergleichendes Wörterbuch der gotischen Sprache [Comparative Dictionary of the Gothic Language]*. 3rd edition. Leiden: E. J. Brill.

Fraenkel, Ernst

1962—1965 *Litauisches etymologisches Wörterbuch [Lithuanian Etymological Dictionary]*. 2 vols. Heidelberg: Carl Winter.

Friedrich, Johannes
1991 *Kurzgefaßtes Hethitisches Wörterbuch [A Concise Hittite Dictionary]*. Reprint of the 1952 edition together with the supplements. Heidelberg: Carl Winter.

Frisk, Hjalmar
1970—1973 *Griechisches etymologisches Wörterbuch [Greek Etymological Dictionary]*. 3 vols. Heidelberg: Carl Winter.

Gamkrelidze, Thomas V.
1987 "The Indo-European Glottalic Theory: A New Paradigm in I.E. Comparative Linguistics", *Journal of Indo-European Studies* 15.1/2:47—59.
2003 "Indo-European and the Glottalic Theory. In Defense of Ejectives for Proto-Indo-European", in: Mary Ruth Wise, Thomas N. Headland, and Ruth M. Brend (eds.), *Language and Life: Essays in Memory of Kenneth L. Pike*. Dallas, TX: SIL International, pp. 513—531.
2011 "Language Typology and Linguistic Reconstruction: A New Paradigm in Historical-Comparative Linguistics", in: Thomas Krisch and Thomas Linder (ed.), *Indogermanistik un Linguistic im Dialog. Akten der XIII. Fachtagung der Indogermanischen Gesellschaft von 21. bis 27. September 2008 in Salzburg [Indo-European Studies and Linguistics in Dialog. Proceedings of the 13th Meeting of the Indo-European Society, 21—27 September 2008, Salzburg]*. Wiesbaden: Reichert, pp. 168—171.

Gamkrelidze, Thomas V., and Vjačeslav V. Ivanov
1973 "Sprachtypologie und die Rekonstruktion der gemeinindogermanischen Verschlüsse" [Linguistic Typology and the Reconstruction of the Common Indo-European Occlusives], *Phonetica* 27:150—156.
1995 *Indo-European and the Indo-Europeans: A Reconstruction and Historical Typological Analysis of a Protolanguage and a Proto-Culture.* 2 vols. English translation by Johanna Nichols. Berlin, New York, NY, and Amsterdam: Mouton de Gruyter.

Haddadou, Mohand Akli
2006—2007 *Dictionnaire des racines berbères communes [Dictionary of Common Berber Roots]*. Tizi-Ouzou: Les Oliviers.

Helimski, Eugene
1997 *Die matorische Sprache: Wörterverzeichnis, Grundzüge der Grammatik, Sprachgeschichte [The Motor Language: Vocabulary, Fundamentals of Grammar, Language History]*. Szeged: Department of Altaic Studies (University of Szeged, Hungary).
1998 "Nganasan", in: Daniel Abondolo (ed.), *The Uralic Languages*. London and New York, NY: Routledge, pp. 480—515.

Hofmann, Johann Baptist
1966 *Etymologisches Wörterbuch des Griechischen [Etymological Dictionary of Greek]*. Munich: R. Oldenbourg Verlag.

Hopper, Paul J.

1973 "Glottalized and Murmured Occlusives in Indo-European", *Glossa* 7:141—166.

1977a "The Typology of the Proto-Indo-European Segmental Inventory", *Journal of Indo-European Studies* 5.1:41—53.

1977b "Indo-European Consonantism and the 'New Look'," *Orbis* XXVI.1:57—72.

1981 "'Decem' and 'Taihun' Languages: An Indo-European Isogloss", in: Yoël L. Arbeitman and Allan R. Bomhard (eds.), *Bono Homini Donum: Essays in Historical Linguistics in Memory of J. Alexander Kerns*. Amsterdam: John Benjamins, part I, pp. 133—142.

1982 "Areal Typology and the Early Indo-European Consonant System", in: Edgar C. Polomé (ed.), *The Indo-Europeans in the Fourth and Third Millennia*. Ann Arbor, MI: Karoma Publishers, pp. 121—139.

Klein, Ernest David

1971 *A Comprehensive Etymological Dictionary of the English Language*. Amsterdam, London, New York, NY: Elsevier.

1987 *A Comprehensive Etymological Dictionary of the Hebrew Language for Readers of English*. New York, NY: Macmillan.

Kloekhorst, Alwin

2008 *Etymological Dictionary of the Hittite Inherited Lexicon*. Leiden and Boston, MA: E. J. Brill.

Kluge, Friedrich, and Walther Mitzka

1967 *Etymologisches Wörterbuch der deutschen Sprache [Etymological Dictionary of the German Language]*. 20th edition. Berlin and New York, NY: Walter de Gruyter.

Kluge, Friedrich, and Elmar Seebold

1989 *Etymologisches Wörterbuch der deutschen Sprache [Etymological Dictionary of the German Language]*. 22nd edition. Berlin and New York, NY: Walter de Gruyter.

Kroonen, Guus

2013 *Etymological Dictionary of Proto-Germanic*. Leiden and Boston, MA: E. J. Brill.

Lehmann, Winfred P.

1986 *A Gothic Etymological Dictionary*. Leiden: E. J. Brill.

Leslau, Wolf

1987 *Comparative Dictionary of Ge'ez*. Wiesbaden: Otto Harrassowitz.

Lindsay, W. M.

1894 *The Latin Language*. Reprinted 1963. New York, NY: Hafner.

Mallory, James, and Douglas Q. Adams

2006 *The Oxford Introduction to Proto-Indo-European and the Proto-Indo-European World*. Oxford and New York, NY: Oxford University Press.

Mallory, James P., and Douglas Q. Adams (eds.)

1997 *Encyclopedia of Indo-European Culture*. London and Chicago, IL: Fitzroy Dearborn Publishers.

Mann, Stuart L.

1984—1987 *An Indo-European Comparative Dictionary*. Hamburg: Helmut Buske.

Martirosyan, Hrach
2008 *Studies in Armenian Etymology, with Special Emphasis on Dialects and Culture. Indo-European Heritage*. Ph.D. dissertation, Leiden University.

Matasović, Ranko
2009 *Etymological Dictionary of Proto-Celtic*. Leiden and Boston, MA: E. J. Brill.

Mayrhofer, Manfred
1956—1980 *Kurzegefaßtes etymologisches Wörterbuch des Altindischen [A Concise Etymological Dictionary of Old Indic]*. 4 vols. Heidelberg: Carl Winter.

Melchert, H. Craig
1994 *Anatolian Historical Phonology*. Amsterdam and Atlanta, GA: Editions Rodopi B.V.

Militarëv, Alexander
1988 "Tamahaq-speaking Tuaregs in the Canary Islands (Linguistic Evidence)", in: S. Brauner and E. Wolff (eds.), *Progressive Traditions in African and Oriental Studies*. Berlin: Akademie-Verlag, pp. 101—107.

Onions, C. T. (ed.)
1966 *The Oxford Dictionary of English Etymology*. Oxford: Clarendon Press.

Orël, Vladimir
1998 *Albanian Etymological Dictionary*. Leiden: E. J. Brill.
2000 *A Concise Historical Grammar of the Albanian Language*.
2003 *A Handbook of Germanic Etymology*. Leiden: E. J. Brill.

Pokorny, Julius
1959—1969 *Indogermanisches etymologisches Wörterbuch [Indo-European Etymological Dictionary]*. 2 vols. Bern: Francke Verlag.

Prasse, Karl-G.
1972—2009 *Manuel de grammaire touaregue (tăhăggart). I—III (= Vol. 1 [1972]): Phonétique, Écriture, Pronom; VI—VII (= Vol. 2 [1973]): Verbe; IV—V (= Vol. 3 [1974]): Nom; VIII—IX (= Vol. 4 [2009]): Syntaxe (Manual of Tuareg Grammar [tăhăggart]. I—III: Phonetics, Writing, Pronouns; VI—VII: Verb; IV—V: Noun; VIII—IX: Syntax)*. Copenhagen: Akademisk Forlag.

Puhvel, Jaan
1984— *Hittite Etymological Dictionary*. Berlin, New York, NY, and Amsterdam: Mouton de Gruyter.

Rix, Helmut
2001 *Lexikon der indogermanischen Verben [Lexicon of Indo-European Verbs]*. 2nd edition. Wiesbaden: Dr. Ludwig Reichert Verlag.

Sihler, Andrew
1995 *New Comparative Grammar of Greek and Latin*. New York, NY, and Oxford: Oxford University Press.

Smoczyński, Wojciech
2007 *Lietuvių Kalbos Etimologinis Žodynas / Słownik Etymologiczny Języka Litewskiego [Etymological Dictionary of the Lithuanian Language]*. 2 vols. Vilnius: University of Vilnius, Faculty of Philosophy.

Steingass, F[rancis Joseph]
1882 *English-Arabic Dictionary*. London: W. H. Allen & Co.
1884 *Arabic-English Dictionary*. Reprinted 1979. Lahore: Sang-E-Meel.

Szemerényi, Oswald
1996 *Introduction to Indo-European Linguistics*. Translated from the 4th edition (1990) of *Einführung in die vergleichende Sprachwissenschaft [Introduction to Comparative Linguistics]* by David Morgan Jones, with additional notes and references. Oxford: Clarendon Press.

Tischler, Johann
1977— *Hethitisches etymologisches Wörterbuch [Hittite Etymological Dictionary]*. Innsbruck: Innsbrucker Beiträge zur Sprachwissenschaft.

Vercoullie, J.
1898 *Beknopt Etymologisch Woordenboek der Nederlandsche Taal [Concise Etymological Dictionary of the Dutch Language]*. Gent: J. Vuylsteke; ’S-Gravenhage: Martinus Nijhoff.

Walde, Alois
1927—1932 *Vergleichendes Wörterbuch der indogermanischen Sprachen [Comparative Dictionary of the Indo-European Languages]*. Revised and edited by Julius Pokorny. 3 vols. Reprinted 1973. Berlin: Walter de Gruyter.

Walde, Alois, and Johann Baptist Hofmann
1965—1972 *Lateinisches etymologisches Wörterbuch [Latin Etymological Dictionary]*. 3 vols. 5th edition. Heidelberg: Carl Winter.

Watkins, Calvert
1985 *The American Heritage Dictionary of Indo-European Roots*. Boston, MA: Houghton Mifflin Company.
[1992] [Revised edition. Included as an Appendix to the 3rd edition of the *American Heritage Dictionary of the English Language*. Boston, MA: Houghton Mifflin Co., pp. 2090—2134.]
[2000] [2nd edition.]
[2011] [3rd edition.]

Wehr, Hans
1966 *A Dictionary of Modern Written Arabic*. English translation by J. M. Cowan. Ithaca, NY: Cornell University Press.
[1976] [3rd edition. Ithaca, NY: Spoken Language Services, Inc.]

Zammit, Martin
2002 *A Comparative Lexical Study of Qur’ānic Arabic*. Leiden, Boston, MA, and Köln: E. J. Brill.

Allan R. Bomhard
Charles Pointe Apartments
213 Millstone Road, Apt. W
Florence, SC 29505-3955
bomhard@aol.com

MOTHER TONGUE
Journal of the Association for the Study of Language in Prehistory • **Issue XX • 2015**
In Memory of Harold Crane Fleming (1926-2015)

Siculan

Peggy Duly & Sergej A. Jatsemirskij

Among the peoples having inhabited Sicily by the middle of the 1st millennium BCE, the Sicels (more correctly Siculans – Latin *Sĭculi*, Greek Σικελοί) have a special place – they were the only speakers of a language belonging to the Italic group on the island (before the Romans).

Application of the name "Sicels," "Siculans," of the same root with the isle's modern name, is not limited to its own territory – we know about the sojourn of Sicels both in Italic (Latium, Umbria, Samnium) and non-Italic (Tuscany, Gallia Cisalpina) districts; one of the Samnian towns was also called *Siculinum* (Liv., XXIII, 37). About Sicels in Sicily and Italy cf., for example, the following:

> Σικελοὶ δ' ἐξ Ἰταλίας (ἐνταῦθα γὰρ ᾤκουν) διέβησαν ἐς Σικελίαν, φεύγοντες Ὀπικούς, ὡς μὲν εἰκὸς καὶ λέγεται, ἐπὶ σχεδιῶν, τηρήσαντες τὸν πορθμὸν κατιόντος τοῦ ἀνέμου, τάχα ἂν δὲ καὶ ἄλλως πῶς ἐσπλεύσαντες. εἰσὶ δὲ καὶ νῦν ἔτι ἐν τῇ Ἰταλίᾳ Σικελοί, καὶ ἡ χώρα ἀπὸ Ἰταλοῦ βασιλέως τινὸς Σικελῶν, τοὔνομα τοῦτο ἔχοντος, οὕτως Ἰταλία ἐπωνομάσθη [Thuc., VI, 2];[43]

> περὶ ὧν ἔλεγον διότι, καθ' ὃν καιρὸν ἐκ τῆς πρώτης παρουσίας καταλάβοιεν Σικελοὺς κατέχοντας ταύτην τὴν χώραν, ἐν νῦν κατοικοῦσι, καταπλαγέντων αὐτοὺς ἐκείνων καὶ προσδεξαμένον διὰ τὸν φόβον [Polyb., XII, 6].[44]

About Siculans (and Ligurians, often tied with them) in Rome we have certain knowledge in Festus: "Sacrani appellati sunt Reate orti, qui ex Septimontio Ligures Siculosque exegerunt."

The antique tradition dates the first appearance of the Sicels on the island to the time soon after the Trojan War, about the 11th century BCE.

The Siculan language is fragmentarily known, which is caused, primarily, by early Hellenization – singular known inscriptions belong to a period not later than the 5th cent. BCE. On the other hand, a considerable number of local words passed through the language of Sicilian Greeks and can be studied. Existing material seems to be enough to make a preliminary conclusion about the greater closeness of Siculan to Latin rather than Oscan-Sabellian-Umbrian dialects; in the first instance it can be seen on glosses, many of which, corrected for Greek transcription, are practically indistinguishable from Latin words; at the same time, we still do not know parallels with Oscan-Umbrian, not having Latin correlations. Now we should analyze the main Sicilian glosses.

---

[43] "The Sicels, again, crossed over from Italy, where they dwelt, to Sicily, fleeing from the Opicans – as is probable and indeed is reported – on rafts, having waited for their passage till the wind was from the shore; or perhaps they sailed thither in some other way also. Even now there are Sicels still in Italy; and the country was named Italy after Italus, a king of the Sicels who had this name" (*trans. by Ch. F. Smith*).

[44] "... of which they give the following account. When they first appeared, and found the Sicels occupying the district in which they are themselves now dwelling, these native were in terror of them, and admitted them through fear into the country" (*transl. by E. S. Shuckburgh*).

GLOSSES

Thus, Sicilian glosses are known almost exclusively from Greek sources. Some of them had become thoroughly secured in the language of Sicilian Greeks, a number are cited as rare lexica from local writers' and poets' works – in particular, Epicharmus (about 540 – about 460 BCE), Sophron (5th cent. BCE), Rinthon (323-285 BCE), Theocritus (about 300 – about 260 BCE).

It is quite obvious that not all Sicilian glosses are Italic or even Indo-European in origin. Some of them, by all appearances, are drawn from a Western Mediterranean substratum (heterogeneous in its turn); one also should not exclude possible ties with North Africa (we see something similar in Sardinia). At the same time, each lexeme given below could be presented in the actual Siculan language; in any case, it makes sense to cite and analyze them together if one wants to understand the ethno-linguistic situation on the isle.

Glosses with clear Latin parallels:

ἀβολλεῖς "dense cloak" (Hes. "περιβολαί ὑπὸ Σικελῶν") = *abolla*;

Αἴτνη – the volcano name corresponds to Latin *aedes* "sanctuary" and Greek αἴθω "to ignite"; about phonetic development see below λίτρα;

ἀρβίννη "meat" (Hes. "κρέας. Σικελοί") = *arbina, arvina*;

βατάνια "bowl" (Hes. "τὰ λοπάδια. ἡ δὲ λέξις Σικελική"); in Pollux with the reference to Epicharmus πατάνη id.; possibly originates in *pateo* similarly to Latin *patera*; concerning the transition *p* > *b* cf. βάτελλα (P.Oxy. 741.18) from *patella*;

βλίτον (?) – "orach," and also a kind of vegetable crop (Hes. "λαχάνου εἶδος") = *blitum*;

γέλα "hoarfrost" (Steph. "πάχνην... ταύτην γὰρ τῇ Ὀπικῶν φωνῇ καὶ Σικελῶν γέλαν λέγεσθαι") = *gelu*;

κάγχαλος "ring; grating" (Hes. "κρίκος ὁ ἐπὶ ταῖς θύραις Σικελοί"; P. F. 46 "Cancri dicebantur ab antiquis qui nun per demitionem *cancelli*");

κάμπος (Hes. "ἱππόδρομος. Σικελοί") = *campus*;

κάρχαι "crawfish" (Hes. "καρκίνοι, καὶ κόχλοι") = *cancer*; here, as in καρκίνος, we are facing dissimilation – cf. also Vedic *karkaṭas* id.;

κάρκαρος, κάρκαρον "dungeon" (Hes. "κάρκαρα ... ἔνιοι τοὺς μάνδρας, Ῥίνθων"; Diod. Sic. XXXI, 9, 2 "ἔστι δὲ ὁ κ. ὄρυγμα κατάγειον βαθύ"; Phot. "τὸ δεσμωτήριον. οὕτος Σώφρων") = *carcer*;

κάτινος "dish, plate" (Varro, lL, V, 25 "Siculi dicunt κάτινον ubi assa[45] ponebant") = *catinus*;

κόρνος "thorny myrtle" (Hes. "κεντρομυρσίνη. Σικελοί") = *cornus*;

κύβιτον, κυβιτόν "elbow" (Hes. "ὁ ἀγκών," Pollux "καὶ κύβιτον εἴπους ἂν ὡς Ἱπποκράτης δοκεῖ δ' εἶναι Δωρικὸν τοὔνομα τῶν ἐν Σικελίᾳ Δωριέων") = *cubitus*;

λατάγη, λάταξ "moisture, liquid" (Athen. XV, 2 "Δικαίαρχος ὁ Μεσσήνιος ... καὶ τὴν λατάγην φησὶν εἶναι Σικελικν ὄνομα. λατάγη δ` ἐστὶν τὸ ὑπολειπόμενον ἀπὸ τοῦ ἐκποθέντος ποτηρίου ὑγρόν"; Callim. fr. 69 "Σικελὰς ἐκ κυλίκων λάταγας") = *latex*;

λέποις (Varro, lL. V, 20 "lepus, quod Siculi, ut Aeolis quidam Graeci, dicunt λέποριν. *a Roma quod orti Siculi* (italisized by me – S. *J.*), ut annales veteres nostri dicunt fortasse hinc illuc tulerunt et hic reliquerunt id nomen.") = *lepus*. This form shows that the Latin nominative *lepus* was made artificially, whereas the primordial form looked like **lepor-*, as in Siculan, because rhotacism is not known in the latter. Here also Ligurian forms λεβηρίς id. (passed through the Greek language of Massilia) and "in fontem *Lebriemelum*" in the juridical award of Minucii[46];

μύρκος "dumb" (Hes. "ὁ καθόλου μὴ δυνάμενος λαλεῖν. Συρακοῦσιοι") = *murcus* "cripple";

ὀρούα "string, thread" (Hes. "χορδὴ ... εἰς δ` Ἐπιχάρμου δρᾶμα") = *urvum* "bent part of a bow" (Varro, lL, V, 27 "ab urvo, quod ita flexum ut redeat sursum versus ut in aratro quod est urvum"); the primary meaning of the root is reflected in Greek ϝερύω "to drag, to draw," from here also Old Slavonic *връвь*, Vedic *varatrā́*, Lithuanian *virvė̃* "rope, cord";

πανία "satiation" (Athen. III, 76 "πανὸς ἄρτος· Μεσσάπιοι. καὶ τὴν πλησμονὴν πανίαν καὶ πάνια τὰ πλήσμια· ... Ῥίνθων τε ἐν Ἀμφιτρύωνι. καὶ Ρωμαῖοι δὲ πᾶνα τὸν ἄρτον καλοῦσι") – of the same root with *panis* "bread"; the Messapic form πανός id. is also interesting;

*περαγ- "to tear" (Hes. "διέῤῥωγα. Ῥίνθων") – one can suppose the ties with *per-ago* in the meaning "to loosen; to pierce; to kill";

ῥογος "barn, granary" (Pollux IX, 45 "καὶ σιτοβόλια· ταῦτα δὲ ῥογος Σικελιῶται ὠνόμαζον, καὶ ἔστι τοὔνομα ἐν Ἐπιχάρμου Βουσίριδι"). Likely to coincide with Latin *rogus* "fire for burning, cremation" – the primary meaning is, apparently, "stack, rick." Another version is proposed by Prof. V. V. Shevoroshkin, who compares it with German *Roggen*, Russian *рожь* "*rye*"; in this case, the word belongs to the second group;

---

[45] I. e. "roast meat."

[46] The inscription dating to 117th BCE, found in the outskirts of Genoa (CIL I² 584 = V, 7749).

σάννορος “foolish” (Hes. “μορώς, παρὰ Ῥίνθωνι. Ταραντῖνοι”) – cf. Latin *sanna* “grimace,” *sannio* “fool, jester”;

σαυκόν “dry” (Hes. “ξηρόν. Συρακούσιοι”) – with an unclear vocalization of the root if it is to be compared with Latin *siccus* – but here it is also possible to see a parallel with ταῦρος : *Stier;*

Σιμαλίς – an epithet of Demeter (Athen. III 73 “οὐ τούτου οὖν τοῦ Ἄρτου ὁ νῦν καιρὸς ἦν, ἀλλὰ τῶν εὑρημένων ὑπὸ τῆς Σιτοῦς καλουμένης Δήμητρος καὶ Σιμαλίδος οὕτως γὰρ θεὸς παρὰ Συρακοσίοις τιμᾶται”) = *simila* “fine wheaten flour”;

σκύτα “throat; neck” (Hes. “τὸν τράχηλον. Σικελοί”) *scuta, scutra* “cup; dish” (??) – if to compare “throat ~ vessel” or “neck ~ dish used as a stand for other vessels.”

It is possible that it was Siculan whither the form νέποδες “offspring, descendants” (for example, in Theocritus) was borrowed – cf. *nepotes;* V. Blažek also ascribes here the gloss of Eustaphius ῥέγες – actually, “reges,” but in the text it is designated as Samnian.

A separate group is formed by the words for weight and monetary systems, coinciding with Latin:

διζᾶς, τριᾶς – the measures, equal to two and three ounces respectively (Pollux IV, 174-175 “Ἀριστοτέλης ... ἐν δ᾽ Ἱμεραίων πολιτείᾳ φήσιν ὡς οἱ Σικελιῶται τοὺς μὲν δύο χαλκοῦς διζᾶντα καλοῦσι τὸν δ᾽ ἕνα οὐγκίαν τοὺς δὲ τρεῖς τριᾶντα τοὺς δ᾽ ἓξ ἡμίλιτρον, τὸν δ᾽ ὀβολὸν λίτραν”). Having been formed morphologically (*-ns*/*-ntis* : - ας/- αντος) as Latin *sextans* (⅙), *quadrans* (¼), *triens* (⅓), *dodrans* (< **de-quodrans*, ¾)[47], they are multiplying names in fact, as opposed to separatory Latin ones (so long as *sextans* “two ounces” (⅙), etc.) and multiplying (with the component *-unx* – *quincunx* “five ounces,” etc.) [Tronskij, 2001, § 849];

λίτρα – pound, equal to 12 ounces or an as[48] (cf. above the Pollux’ testimony, and also Hes. “λίτρα· ὀβολός. οἱ δὲ νόμισμα παρὰ Σικελοῖς”; Pollux IV, 173 “στατῆρα δ′ οἱ τῆς κωμῳδίας ποιηταὶ τὴν λίτραν λέγουσιν· τὴν μὲν γὰρ λίτραν εἰρήκασιν οἱ Σικελικοὶ κωμῳδοί”) = *libra*. In this word, as in the name Αἴτνη, we find the transition **-dh-* > *-t-*[49], peculiar to Siculan;

μοῖτον “loan” (Hes. “μοῖτον ἀντὶ μοίτου παροιμία Σικελοῖς· γὰρ χάρις μοῖτον”; Varro, lL, V, 36 “si datum quod reddatur; *mutuum;* quod Siculi *moeton*: itaque scribit Sophron ‘*moeton* † antimo et’”) = *mutuum;*

---

[47] In turn, these forms contain some dialectal elements.

[48] Cf. “as libral,” in Greek terms – ὀβολός.

[49] Only a single similar reflection is known in Latin – *rutilus* “red with a yellowish tint,” initially “reddish” along with *ruber,* dialectal (in vocalism and consonantism respectively) *robus, rufus,* Greek ἐρυθρός (< **reudhros*).

νοῦμμος "coin" (starting from Aristotle, cf. also Pollux "ὁ δὲ νοῦμμος, δοκεῖ μὲν εἶναι Ῥωμαίων τοὔνομα τοῦ νομίσματος, ἔστι δὲ καὶ Ἑλληνικὸν τῶν ἐν Ιταλίᾳ καὶ ἐν Σικελίᾳ Δωριέων") = *nummus;*

ὀγκία "ounce" (Phot., Paus. "ὀγκίαν· τὸν σταθμόν," etc.) = *uncia.*

There are certain lexemes which find no analogues in Latin or other Italic languages, but are ascribed to Indo-European on the grounds of other parallels:

᾿Αρέθουσα – a nymph and a spring of the same name close to Syracuse, as the springs in Ithaca and Euboea as well: I.-E. **redhō-* "Quelle" – cf. the name of the river *Rednitz* (in Germany);

ἰπνή "horse cloth" (Hes. "ἐφιππίς. Σικελοί"). The origin from I.-E. **eḱu̯os* is very probable;

ῥογος see above;

τόργος "(black) kite" (Hes. "ὁ γὺψ παρὰ Σικελιώταις"; here also "Τόργιον· ὄρος ἐν Σικελίᾳ") – in the bird's name we find the same root as in Old Norse *storkr*, German *Storch* , English *stork*; relevant to initial consonants cf. again Latin *taurus* – German *Stier*.

Finally, we should adduce the glosses of disputable origin:

ἄζετον – rather, "honest"[50] (Hes. "πιστόν. Σικελοί");

ἄμοιος "bad" (Hes. "κακός. Σικελοί");

ἀσχέδωρος "boar hunter" (Athen. "οἱ περὶ τὴν Σικελίαν οἰκοῦντες ἀ. καλοῦσιν τὸν σύαγρον," etc.) – cf. ἀσχίον "truffle" (Theophr. "τὸ ὕδνον... καλοῦσὶ τινες ἀσχίον καὶ τὸ οὔϊγγον");

ἀντόμος "stake" (Hes. "ἀντόμους· σκόλοπας. Σικελοί");

ἀκερσίλα "myrtle"(Hes. "μυρσίνη. Σικελοί");

*γέρρον or *γέρρα with an unclear primordial meaning: 1) "twigs" (P. F. "*Gerrae* crates vimineae. Athenienses cum Syracusas obsiderent et crebro *gerras* poscerent, irridentes Siculi *gerras* clamitabant. Unde factum est, ut *gerrae* pro nugis et contemptu dicantur"); 2) "verenda; fascini": "γέρρα Σικελοὶ λέγουσι τὰ ἀνδρεῖα καὶ γυναικεῖα αἰδοῖα"; "γέρρα ... τὰ δερμάτινα αἰδοία"; "et sunt *gerrae* fascini, qui sic in Naxo, insula[51] Veneris ab incolis appellantur";

δράκτα "leaves, foliage" (Hes. "φυλλάς. Σικελοί");

δραξών "some agricultural sanctuary" (Hes. "ἐν Σικελίᾳ ἱερόν... εἱς δ᾽ οἱ γεωργοὶ εὐχάς ἔπεμπον");

---

[50] There is also a far rarer homonym πιστός – "potable."

[51] Here, by all appearances, some confusion takes place – the name Νάξος should be attributed to the Sicilian town, not to the largest one of the Cyclades isles.

ζάγκλον "sickle" (Thuc. "τὸ δρέπανον οἱ Σικελοὶ ζ. καλοῦσιν"), with the variant δάγκλον (Hes.), here also the older name of Messina – Ζάγκλη. The relationship with Lithuanian *dal̃gis* "sickle" is quite possible;

ἰμέσιτος "custom"(Hes. "δίκη Σικελή");

κίναδος "fox, vixen" (sch. Theocr. V, 25 "ἡ ἀλώπηξ");

Λάγεσις – theonym (Hes. "θεός. Σικελοί"); V. Pisani compares it with Messapic *logetibas*;

*λαθραχ- "bridle" (Hes. "λαθρακάζων· χαλιναγωγών. Σικελοί");

λαοργός "impious" or "unburied" (Hes. "ἀνόσιος. Σικελοί"). Prof. V. V. Shevoroshkin reports that the word may be bound with Luwian *lawar-* "to break"; such a borrowing can be explained only by Etruscan – there we know a series of Anatolian lexemes (primarily from Lycian and Milyan);

*μυττ- , the derivatives of which are usually listed among the Sicilian glosses (if the existing forms can be reduced to a single root at all), judging by suffixation, belongs to Aegean-Cretan area[52];

*μῶμαρ "fool" (P. F. 117 "*Momar* Siculi stultum appellant"); one may suppose the tie with the word μῶμαρ "shame; reproach" in Hesychius: "μέμφις, ὄνειδος, αἶσχος";

σαπύλλειν "to wag" (Hes. "σαίνειν· Ῥίνθων"). The suffix (- υρ- /- υλ-) outwardly cannot be distinguished from Aegean-Cretan; the borrowing seems quite probable;

τάρπη "urn" (Hes. "† συρακούσιοισύηνος. τίνες σορόν" – probably, "Συρακούσιοι † σύηνος. τίνες σορόν").

INSCRIPTIONS

As has been shown in the previous section most glosses known to us coincide in detail with Latin lexemes; compliance with that finding, while analyzing the structure of the inscriptions of Latin material will be the main goal for us – but not without the Oscan-Umbrian-Sabellic data.

Thus, Siculan inscriptions are almost singular; only the longest of them, known as PID 578, LIA 12, can be analyzed with a relatively distinct reading. In two other inscriptions we can only try to find separate words, consonant to Latin (or Italic as a whole). Let us analyze them:

PID 576, LIA 127: 1) **dviíitimrukesíazsuie** [2)] **resesaniresbe** [

---

[52] The main form with an ethnic indication– "μύτταχες· μύχαι. Σικελοί. Ἴωνες πώγωνα" (Hes.); here also "μύττηξ· ὄρνις ποιός," "μυττίς· τὸ μέλαν τῆς σηπίας," and some others. Possibly, the last may show the original meaning of the root – "black."

It seems that amongst the initial graphemes we find the pan-Indo-European root **du-o-h_1*, Italic **duō* "two," Latin *duo*,[53] but here the grammatical structure is unclear (the very borders of the form, proper, are unclear). We can suppose that **dviii* is a rebuilt form, plural, corresponding to Latin type with *-i*, as Latin 2nd declension (whereas Latin *duo, ambo* are the fossilized dual forms), or try to find here the form, related to Latin *duti* "for the second time."[54] Nevertheless, it is possible that we do not have a numeral at all, and instead we deal with the form *-im* – end, comparable instead to Latin dialectal Acc. of the type of *turrim, puppim*, etc.

We might see a pan-Italic Genitive form (1st declension) *rukesíaz*, correlated with archaic Latin type (*pater familias)*, but the root **ruk-* itself, as well as the alteration *r – l*, it seems, has not been found in Italic languages; a further consequence of that approach, indeed, may be to allow too many externally similar Italic correspondences to be sensible.

In the inscription LIA 128 **nendas . . . . tebei praarei enbourena ivide pagos tikeaite . . ss . iube** we should also define only the separate forms.

Among them the forms *tebei praarei* are the most interesting, where we find a probable agreement of the unclear *praarei* with the personal pronoun *tebei* (= Latin *tĭbī* / *tĭbĭ*); graphically *ei* can show the length of the vowel, similar to archaic Latin writings, like a reduplication *aa*, widespread in Italic dialects. The form *pagos*, in turn, can fully correlate with Latin *pagus* "rural community," Acc. Pl.; we cannot exclude that *nendas* also hides the 1st declension genitive. V. Pisani compared it with the type of Χαρώνδας [Pisani 1953 : 283], which seems to be insecure – in the second we should see the root CVC + suffix *- νδ- , but, following on the assumption given above, we get the root CV.

It is quite natural to mark out a prefix in the form *enbourena*, corresponding to Latin *in*, archaic *en*, but the interpretation of the whole word seems practically impossible – the root, close to **bheur-* / **bhour-*, it seems to me, does not find any analogy in the Italic group (cf. below the problem of *viinobrtom*).

It is also not excluded that the word *ivide* coincides with Latin *ibidem*, but it is just a conjectural opinion.

Anyway, the inscription PID 578 – (var.: LIA 126) is the most important for us. It was made on a ceramic vessel (ἀσκός), found in Centuripe (Latin *Centuripae*, Sicilian *Centorbi*) in 1824. The Greek alphabet of the 6th or the 5th century B.C.E is used here, but we have some difficulties with paleography. In particular, the grapheme Z, usually transliterated as *í* is hard to understand, though I. M. Tronskij conveys it as *hemitom;* see below the concrete usage.

---

[53] [Lubotsky : 2008, s.v. *duo*].

[54] Sanskrit *dvitya-* "second," Old Avestan *daibitiia-*, etc. [Lubotsky : 2008, s.v. *duti*].

While analyzing this inscription, the word-boundary seems to be the main problem (there are evident spaces amongst some grapheme groups, but they obviously do not follow the real division of the words); the translations, given above, seem to differ so deeply because of this fact.

We should see two main interpretations – [Pagliaro 1935 : 15] and [Pisani 1953 : 279-282]:

nunus tenti mi madus taina(m) mí emitom esti durom nane pos duro(m) mi emitom esti velí omned emponi tanto(m) mered es viinobatom e...

> "nullus tendit(o) mihi mattus tinam; a me emere est durum nane quod durum a me emitom est, vel omni impone tantum mero in hoc vas vinarium";

nunu stentimí maru stainam íemitom esti durom nane pos durom íemitom esti velíom ned emponitan tom eredes viinobrtom e...

> "A Nono Stetimi marone stamnum oblatum est donum Nanae. Postquam donum oblatum est votivum ne implento id heredes ad *vinifertum."

It is obvious that both versions are constructed on a number of assumptions and must be reviewed– at least, in some part; it makes sense to state the reservation that the first looks far less probable.

For the very beginning of the analysis we should separate the repeated (though, with another word order) fragment – *íemitom esti durom* and *durom íemitom esti,* "*given as a donation," as is suggest by V. Pisani. The word *durom* seems to be borrowed from Greek δῶρον, Latin *durus* does not do for the content. Theoretically, we should exclude that the word *íemitom* was defined incorrectly, to wit, the previous one (as in the second case with *durom* as well) shows final *-m* (*stainam*), and it is acceptable that here we have one more *m,* omitted before the junction of the words, as it has place with *m* and *s* in archaic Latin writing,[55] but then we can only find *mí* as an analogue of Latin *mīhī* / *mĭhĭ* and even *mē,* which contradicts the unquestionable syntactic structure with 3 Sg. *esti.*

Thus, we have to find what the sign Z means. In our opinion, í in *íemitom* may show the specific vowel sounding; *velíom* is quite a bit more questionable. In any case, the motive for why an additional sign had been inserted remains stictly conjectural.

In another significant grapheme sequence both variants of the word-boundary, *emponi tanto(m)* and *emponitan tom,* seem to be completely incorrect. The form *tanto(m)* does not fit the context, *emponi,* also, it is hardly explainable from the grammatical point of view; in the second variant *emponitan* is not grammatically evident, in consideration of serious assumption about a pronoun **tV-*, never seen in the Italic languages. Whereas, even I. M. Tronskij suggested a grammatically and lexically faithful translation (not describing the word-formation) – "imponunto" for *emponitanto* [Tronskij 1953 : 61]. Here we deal with the form, containing the prefix *in* (Latin *in*, archaic *en*) and a verbal root, reflected in Latin *pono*. Grammatically it is the 3 Pl. Optative (which is usually simplified as "Future Imperative"), identical with the Latin type like *sunto, ornanto*.

---

[55] Cf. *ne med malo(s) statod* in "Duenos" inscription.

In term of its structure the form *emponitanto* is a frequentative verb (1st conjugation) from the participial base *(*em*)*ponit-* (in spite of Latin *posit-*). Such verbs ending with *-tare, -sare* are very well known in Latin – cf., for example, regular and more sonorous *cantare*, formed on the participial base of *cano* (*cant-*), archaic at least because of the perfect base with reduplication (Perf. Ind. act. 1 Sg. *cecini*). Those verbs existed already in the archaic period and not all of them remained in classical Latin – cf., for example, *futare* "saepius fuisse" (Cato apud Festum-Paulum); *futūrum*[56] no longer has correlates with participle or supine.

The other forms we will examine in succession.

1) Initial *nunu* is, obviously, a form of Abl. Sg. (< **nou̯enōd*) – see the name *Nōnus* – as the agent;

2) The form *ste_timí*, along with *nunu*, in our opinion, is also a nominal component; it seems highly probable to reconstruct it as *stentimí*, but it appears not to find any clear parallels in the toponymy and onomastics in Italia and the islands; for the present we can recall only an Etruscan *nomen* (CIE 3024 *lθ unata lθ steniaś*). Grammatically this form should be understood as Abl. Sg. (3rd declension), according to *nunu*;

3) The title *maru*, which finds evident correspondences in Etruscan *maru*, Lemnian *maraś*, Latin *cognomen Maro*, and Oscan name *Maras*. This also seems to agree with Abl. Sg. c *nunu*;

4) *stainam* (Acc. Sg.) – the word, designating the kind of vessel;[57] following V. Pisani, this form, should be admitted as a borrowing from Greek στάμνος "pitcher," but phonetic changes are dubitable. The word itself seems to appear in the feminine form (σταμνήν) only once – in the obscure vulgar etymology "ἀμφωρεύς – ἀμφορεύς" (Orion Gr.). Sonant replacement with ι we find in the singular Cretan μαῖτυς = μάρτυς, but the group μν appears as μμ in Cretan: ἐσπρεμμίττω = ἐκπρεμνίζω; it is also quite possible that ν was substituted in Siculan already, similarly to **u̯ol-s* > *vois* (in the "Duenos" inscription) > classical *vīs*;

---

[56] Originally, it seems, from the combination **fūt*(*o*)*-esom*, where the second component is an archaic infinitive, identical to Oscan *ezum*, Umbrian *erom* "esse" [Tronskij 2001 : 312].

[57] Not to be confused with Old English *stǣne* "(stone) vessel," because it is formed from the root *stān* "Stein" (and the inscription itself had been made on the ceramics).

5) *íemitom*, as was shown, was compared with Sanskrit *yam*, which is incorrect in our view – here we are dealing with a very polysemantic verb,[58] and the possible ties with a prefixal construction, analogous with Latin *e-*, is absolutely ignored;

6) *esti* = identical to Latin *est*(*i*), Greek ἐστί;

7) *durom* (Acc. Sg.) – "durus" – very doubtful, Greek δῶρον "donum" is far more likely;

8) *nane* – Dat. Sg. (< **nanāi*) has been suggested here; the Mediterranean theonym *Nana* is quite well known, but it seems to me that this grapheme combination hides two words, corresponding to Latin *nam* and negative conjunction *ne*; the absence of **m* can be easily explained with the following sonant;

9) *pos* – an evident adverb **post*, with the loss of final consonant, in the meaning, equal to Latin *postquam*;

10) *durom íemitom esti* – the construction, analyzed above, is repeated;

11) *velíom* (Acc. Sg.) – probably, "votivum," from **u̯el-* "velle"; cf. also Volscan *uelestrom*;

12) *ned*; in our view, this form can be typologically compared with Latin *haud*, built (according to the explanation by R. Thurneysen [Walde-Hofmann, s.v. *haud*]) as **hău̯idom* > **haudom* > *haud*, with the loss of *-om* – similarly to *nōn* (< *noenum*), *nihil* (< *nihilum*).

The form *omned*, cited above, hardly looks probable, because it implies quite a strange mixing of consonant and *i*-stems in Siculan 3rd declension;[59] in such a case we should expect **omnid*, as in the Latin type like **LOVCARID** (CIL 1^2 401), Oscan *slaagid*;

13-14) *emponitantomeredes*. Word-boarding *emponitanto / meredes*, is indubitable, as was shown above, the first component, following I. M. Tronskij, we should translate as "imponunto," with the meaning of the verb, close to Latin "ad finem epistolae imponam" (Seneca). The comparison *eredes* – *heredes* no longer stands – we should find a lexeme with the initial *m-*. For this function Latin *meritus* (in adverbial meaning) is appropriate *merito* "suitably," "according to merits"; concerning the chage ĭ > ĕ see an archaic form *merĕtō*(*d*) [Tronskij 2001 : 85], preserved, in particular, in CIL I^2 9.

15) *viinobrtome*; the grapheme *e*, in this combination surely must be divided as the beginning of the lost next word; *viinobrtom*, in its turn, is a composite word, with an exact initial *viino-*, i.e. *vīnum*, "wine." The component *brtom* is more interesting (while the translation "*vinifertum" can hardly be beyond doubt). Being a past participle or a supine with *-t-*, (which does not have analogues in Latin),[60] it shows a non-Italic change **bh* > *b*, contrary to Latin *fero* (here also Greek φέρω, Sanskrit *bhāra-*, Gothic *bairan*, etc. [OLD : s.v. *fero*]). We may think that this form was borrowed from Messapic, where we find *berad*

---

[58] [Kochergina 1987, s.v. *yam*]: (P. pr. *yáchati*) "to check," "to offer," "to try to prevent," "to lift," "to go," "to show," "to keep," "to tame."

[59] In comparison, the Latin ending "*-ĕ* cannot originate in *-ed*, because *-d* cannot be lost after a short vowel" [Tronskij 2001 : § 360].

[60] Where this verb is suppletive – *fero – tuli – latum*.

[Tronskij 1953 : 59]; ancient tradition keeps some data that Messapians (Greek Μεσσάπιοι, Ἰάπυγες) ousted the Siculans from Apulia and Calabria. Also cf. here *Porcoberam* from the "in the juridical award of Minucii," mentioned above.

Thus, *all the words* (emphasis by me – S.J.) in this inscription can have a satisfactory interpretation, and the Siculan material is giving us some more possibilities for the comparative studies of Italic languages.

Abbreviations

CIL	–	Corpus inscriptionum Latinarum
CIE	–	Corpus inscriptionum Etruscarum
LIA	–	Pisani V. Le lingue dell'Italia antica...
OLD	–	Oxford Latin dictionary
PID	–	Conway R. S. et al. The Prae-Italic dialects of Italy
TLE	–	Pallottino M. Testimonia linguae Etruscae

References

Dvoretskij I. Kh. *Latinsko-russkij slovar* (Latin-Russian dictionary). Moscow, 1995.

Ernout A., Meillet A. *Dictionnaire étymologique de la langue latine*. Histoire de mots. P., 1951.

Kochergina V. A. *Sanskritsko-russkij slovar'* (Sanscrit-Russian dictionary). Moscow, 1987.

Lubotsky A. *Etymological dictionary of Latin and the other Italic languages*. Leiden-Boston, 2008.

Oxford Latin dictionary. Oxford, 1968.

Pagliaro, A. La lingua dei Siculi // *Atti del III Congresso Internazionale dei linguisti* (Roma 1933). Firenze, 1935. – C. 151–159.

Pisani V. *Le lingue dell'Italia antica oltre il Latino*. Torino, 1953.

Tronskij I.M. Istoricheskaja morfologija latinskogo jazyka. *Obscheindoevropejskoe jazykovoe sostojanie* (voprosy rekonstrukcii). Moscow, 2001.

Tronskij I.M. *Ocherki iz istorii latinskogo jazyka*. Moscow-Leningrad, 1953.

Untermann J. *Wörterbuch des oskisch-umbrischen*. Heidelberg, 2000.

Urbanová D., Blažek V. *Národy starověké Itálie, jejich jazyky a písma*. Brno, 2008.

Walde A., Hofmann J. B. *Lateinisches etymologisches Wörterbuch*. Heidelberg, 1938-1956.

MOTHER TONGUE
Journal of the Association for the Study of Language in Prehistory • **Issue XX • 2015**
In Memory of Harold Crane Fleming (1926-2015)

Notes on Anatolian languages

Vitaly Shevoroshkin
University of Michigan

I. Introduction. - Short observations

A considerable number of books and papers on Anatolian languages have been published in the recent years. They deal mostly with the Hittite language, but there are also studies in Cuneiform and Hieroglyphic Luwian, as well as in Late-Anatolian alphabetic languages, first of all, Lycian and its archaic dialect Milyan (= Lycian B). Scholars have now two Lycian dictionaries, both containing Milyan words as well: Melchert's DLL (2004) and Neumann's GL which has been edited and considerably enlarged by Tischler (2007).

I would like to present here several notes, dealing primarily with the Milyan inscriptions, but also with the genetic ties between Milyan (Mil.) and other Anatolian (Anat.) languages. Special attention is given to Milyan words which have cognates in Hittite but not in other languages of the Anat. group. There is also a list of Mil. nominal and verbal lexemes which show Indo-European (IE.) origin, but seem not to have any genetic links to the rest of the Anat. languages.

Only two Milyan inscriptions are known, both poetic. The shorter, and older, inscription TL 55 (Wzzaije-Antiphellos) is authored by Pixre, probably the de-facto ruler of the Lycian province of Phellos (Wesñte in Milyan). The longer inscription, TL 44c.32-44d, represents the Mil. part of the Lycian-Greek-Milyan text (not a trilingual) of the Xanthos stele. Its author is Xerẽi, first a top commander, than the ruler of Lycia, successor to his older brother Xeriga.

Milyan grammatical forms are similar to those in Lycian, though Milyan has, along with the dative and locative cases, also allative (cf. Hittite) which is routinely ignored by the researchers. Still, at least Schürr and Yakubovich agree with me that several Mil. nouns and adjectives, ending in *-a*, are allative forms.

1. Allative forms in both Milyan inscriptions

Both Lycian dictionaries, DDL and GL, define Mil. allatives as acc.-coll. forms in -*a*, - which inevitably leads to incorrect interpretations not only of the words in allative but also of other forms in such passages. - But since it is rather difficult to explain away forms like *trqqñt-a* (all. case 'for Trqqiz', functionally identical to dat. *trqqñt-i*), suggestions have been made that *trqqñta* is, actually, a form with a damaged auslaut, - something like *trqqñta[si]*.

The above situation is the reason why, in both Lycian dictionaries, the allat. form *trqqñt-a* 'for Trqqiz' (end of the line 55.2) tends to be 'eliminated'. - In DLL: 132, we find *trqqñta[]* with an exclamation mark. - In GL: 378 we read: "Unklarer Kasus: Lyk. B 55,2 (*trqqñta-* (3) *[..]*)". - This looks like an assertion that, after all, we do have a form with two damaged letters at the end, *trqqñta[..]*, - but no, we don't. The very beginning of the line 55.3 shows *[.]naz*, most probably *[a]na-z* (acc. pl., as required by the context; see next ex.) - In any case, there is space only for one damaged letter, the first in the line 3, prior to the segment *-naz*. - On the other hand, line 3 contains another form in *-a*, apparently attribute, or appostion, to our *trqqñt-a*, namely, *[.]pa[.]ãn-a* (which might be *[m̃]pa[r]ãn-a*; but see below). Actually, the functional identity of both these words can be proven.

Both forms in *-a* belong to a 7-component chiasmic construction which is presented here. It shows a central-symmetric shape with rhyming, grammatically identical, words in positions 1 & 7; 2 & 6; 3 & 5. Words in each pair are equidistant from the center (= position 4, noun in acc. sg. *xlp[p]-ã*, some potable?). [The connector *kibe* is not a part of the chiasmic structure]:

1	2	3	4		5	6	7
-ẽ	*-a*	*-a-z*	*-ã*		*-a[-z]*	*-a*	*-ẽ*
kãt<a>q-ẽ	*trqqñt-a:*	*[a]n-a-z*	*xlp[p]-ã*	*(kibe)*	*(a)d-a-[z*	*.]pa[.]n-a*	*kuprim-ẽ*
gen. pl.	all. sg.	acc. pl.	acc. sg.		acc. pl.	all. sg.	gen. pl.

As one can easily see, the above structure not only confirms the grammatical meaning of *-a* as a nominal ending, it also confirms our identification of *trqqñt-a* as a complete form, since both words in this pair (2 & 6) end in *-a* and show the same amount of letters, - namely, seven. - Cf. also matching positions 3 and 5 with four sounds in each form (the situation with the pair 1 & 7 is unclear because of a strange, - probably erroneous, - spelling). - An emendation *(a)d-a[-z]* (position 5) for *da[.]* (text: *kibeda[.(.)]*) is strongly suppoted by a comparison of the noun *(a)d-a[-z]* with the matching noun in acc. pl. *[a]n-a-z* (position 3).

Note also the identity of initial letters in the matching pairs: *k- … k-* (1 & 7); *a- … a-* (3 & 5); this implies that the pair 2 & 6 may be: *trqqñt-a … [t]pa[.]n-a* (?).

If a word structure is identified, emendations of the type *(a)d-a-[z]* (position 5, above) become possible: this word is paired with *[a]n-a-z* (position 3; thus the final letter is *-[z]*). Actually, both these forms differ only in one point (*-n-* vs. *-d-*).

So, the transcription of the above sequence shall probably be *trqqñta* $_3$ *[a]naz*, or, for that matter, *trqqñta [a]naz.* [Damaged characters in the str. 55.IV are taken in consideration in pt. II, sect. 4; it is also shown here that external comparisons confirm emendations *[a]naz*, *(a)da[z]* and *xlp[p]ã*].

Cf. some other Mil. words and phrases in the allat. case:
trij-a 'for the Exhausted one' (= Trqqiz, prior to a lavish offering; pt. II, sect. 5);
piga-s-a … ura-sl-a 'for the Splendid one [=Trqqiz] for(/at$^?$) the great offering';
<*t*>*ut-a* 'for [my] kin' (55.XI; voc.-pl. forms: *tuta-si-z*, 55.X, and *ple-li-z*, 55.III);

xbada-s-a ‘for the Xanthians’ (:acc. pl. *xbada-si-z*; cf. voc. pl. *xbad-i-z* [= gods]);
xuzr-uwãt-a … waxs-a ‘for the protecting/protective guards’ (adj. *xuzr-uwẽti-*);
zaw-a … qñnã-tb-a: xuzr-ñt-a xeriga-s-a: tu[k]a-dra-l-a: palaraim-a ‘for the benefactors$^{?}$, the 12 statue-shaped Xeriga’s protectors, to-be-libated / for [their] libations’ (at Xeriga’s sepulcher, 44d.III; cf. acc. sg. *palar-ã*, a libation for the deities *zina-s-e* [dat. pl.], in Trqqiz’s 4th offering instruction, 55.VIII);
qñz-a: prijelij-a ‘for/to the *qñze*-dish(es) of/for the foremost ones’ (44d.XI);
zi(-e)reim-a ‘for the storage(s)’ (44c.I) : *erei-mi-* ‘supply/store’ < vb. **erei-* ‘raise’.

2. Čop’s Law and the Luwic branch of the Anatolian languages

In his book *Accent in Hittite* (pp. 572ff. and 584ff.), Kloekhorst demonstrates that Čop’s Law in the CLuw. language has affected only those obstruents which have originated from the IE. voiced aspirates. Accordingly, he proposes one new etymology: *ādduwa-* ‘evil’ < IE. **$h_1$édh-wo-* ‘pain’ (p. 578). - All this seems to represent an important development.

But he also asserts (p. 572f.) that Čop’s Law has affected not only the Luwian language but the whole group of Luwic languages because Lyc. adj. *epttehe/i-* < **ebetehe/i-* ‘there’ < **ebete* is subjected to Čop’s Law: *-et-* < **-édh-*.

It is not clear to me if, in the Lyc. forms of the type *epttehi*, the underlying stress was indeed after *p/b* and before *tt*, - but there exsit several words, both in Lyc. and Mil., which definitely show that both the Lycian and Milyan were immune to Čop’s Law:

(1) Lyc. **tabaha-* ‘heaven’ (in *tabaha-za*, Schürr; cf. GL: 336f.) : CLuw. *tappas-* id.
(2) Lyc. *tebãna* ‘to defeat’, Mil. *te-tbe-* ‘to damage’ <IE. **dhébh-* ‘diminish, impair’
(3) Lyc. TN *medbija-*, Mil. *medu* (a drink) : CLuw. *maddu* ‘wine’, adj. *madduwiya-*
(4) Mil. *edul-i* ‘for harm to …’ (dat. sg.) : CLuw. noun *ādduwal-* ‘evil’ (above).

3. A Hittite-Milyan syntactic match with a cognate set

A Ht. word pair, - noun *sapas-alli-* ‘scout, lookout’ and verb *sapas-iya-* ‘scout, reconnoiter’ (cf. EDH: 725), - may be compared with Mil. words which seem to match their Ht. counterparts semantically, phonetically, and genetically:

Mil. nouns: *saba-* ‘watch(ers)’ (instr. *saba-di*); *saba-k-a* ‘guards/sentries’ (coll.);

Mil. verb *sebe-* ‘to inspect’, or sim. (3-sg. pres. *sebe-di*; 2x); see exx. below.

The proposed comparison is corroborated by the following, precise syntactic match between a Ht. text (as in CHD) which contains the vbl. form *sapas-iya-r* ‘they scouted’ (3-pl. pret.) and the Mil. str. 44c.X, with the vbl. form *sebe-di* ‘he inspects / is inspecting’ (agent: Lycian top commander Xerẽi, ‘the Protector’):

(a) ^{uru}***Malazzian*** ^{uru}***Taggastann=a sapasiyar*** ‘they scouted [the cities] Malazziya [and] Taggasta’

(b) [Mil. text] ***Xãzbi: Tuminesi: Hñtawã: Kridesi: sebedi*** (…) ‘(he) scouted/ inspected [the cities] Kandyba, Tymnessos, Hñtawa [and] Kridesi (…)’.

Ht. *sapas-* [sabas-] and Mil. *saba-* [saƀa-] (noun) / *sebe-* [seƀe-] (verb) may originate from an IE. base of the type **sebh-/*sobh-os-* (undocumented otherwise); the Ht. base *sapas-* clearly does not match phonetically the IE. vbl. root **spek̂-*.

The events depicted in the above Mil. strophe seem to have taken place after one of many civil wars, fought by Xerẽi (who won them all, - at least, according to his own testimony; after all, he is the author of the Xanthos text). - As usual, Xerẽi awards his commanders and warriors after a victorious campaign.

The full text of the above Mil. strophe 44c.X (= 44c.54-56) is now presented in our transcription (no capital letters; endings are indicated) and interpretation:

(a) *xã<t>b-i: tumines-i: hñtaw-ã: krides-i: sebe-di: qirz-ẽ: ziw-i:*

‘He (= *zrẽtẽni*-Protector of the preceding strophe) inspects$^{?}$ (*sebe-di*) [the cities] Kandyba, Tymnessos, Hñtawa [and] Kridesi (= 4x acc. sg.) during the delivery/ payment$^{?}$ (loc. sg. *ziw-i*, to noun *zi-we-*, type: *tulije-we-*) of reparations/ indemnities$^{?}$’ (lit.: ‘of shares’, gen. pl. *qirz-ẽ* to the noun *qirza-* ‘(promised) share’; syn.: *sbirte-*).

(b) *dewi-s: as-a: muwa-ti: zrẽtẽni-z:*

‘He invigorates (vb. *muwa-*) the valorous/dedicated (acc. pl. *dewi-s*) generals (lit. ‘protectors’: acc. pl. *zrẽtẽni-z*) for security$^{?}$ (*as-a*)’

(c) *al-i: muw-i la-de: epñta-di sebe: pasbb-ã:)*

‘He took (vb. *la-*) both the officers/command (acc. sg. *al-i*) and the troop/ detachment (acc. sg. *pasbb-ã*) to/for an invigoration (dat. sg. *muw-i*) from the takings/booty’ (abl. to noun *a/ep-ñt-a-* : Ht. ptcp. *appant-* ‘taken’; type: *pas-ñt-a-* ‘protection’, *udr-ñt-a-* ‘incantation’). - Cf. pt. II, sect. 3, for the above passage c.

4. Ht. *haink-* : CLuw. *hizz-a(i)-* ‘hand over’ : Mil. *χzz-ãt-a-* ‘allotment’

As it is known, the Ht. verb *hai(n)k-* ‘bestow, offer’ (etc.) originates from the IE. vb. **h*$_2$*ey(n)k̂-* with the same meaning (cf. HED-3: 289; **h*$_2$*e(n)k̂-* in LIV^2: 268). - As far as I can judge, no other Anatolian cognate of the above IE. root is listed in etymological studies. Nevertheless, such cognates probably exist in CLuw, Mil., and Lyc. languages (exx. 1-3).

(1) CLuw. *hizza(i)-* ‘hand over’$^{?}$ (CLL: 70) [ts < *k̂] : Hitt. *hi(n)k-* (above);

(2) Mil. *χzz-ãt-a-*, [inanim.] *χez-m̃* ‘allotment’ (*Czz-* / *Cez-* / *Cẽz-* < **C(V)nk̂-*);

(3) Lyc. proper names Xss-ẽñzija (*-zi-* < **-tyV-*) and Xes-ñt-edi (*Css-* / *Ces-* < **CVnk̂-*); both Lyc. names match the Mil. noun *xzz-ãt-a-*. - For an underlying meaning of the above names, cf. related Ht. noun *henk-ur* 'gift'.

Both Mil. *xzza-* and Lyc. *xssV-* probably match CLuw. *hizza-*.

Mil. *xez-* and Lyc. *xes-* seem to match Ht. *haink-* or *henk-*.

Melchert (DLL: 109) correctly compares Lyc. name Xssẽñzija with the Mil. noun *χzzãta-*, - though his concurrence with Schürr's identification of *χzzãta-* as Xanthos is refuted by the context (see exx. at the end of this note).

Mil. inanim. noun *χez-m̃* 'allotment, share' (suff. *-m̃* < **-men*) is preceded in the text by the inanim. anaph. pron. *-de* (Xerẽi's feast instruction, 44d.34-37). - Accordingly, Mil. anim. noun *tes-ẽn-i* (acc. sg.; a beverage: 'shake'?) is modified in this same text by the anim. anaph. pron. *-ne* (cf. relevant exx. in pt. II, sect.11).

Altern.: Mil. *xzz-ãt-a-* ultimately originates from **h$_2$n̯k̂-*.

The anim. noun *xzz-ãt-a-* is synonymous to its inanim. cognate *χez-m̃*, with *-m̃* < **-men*, as in *masxx-m̃* 'grant' and *(a)l[b]-m̃* (some beverage).

In the str. XIV (=44d.44-47; events in Aperlai; Xerẽi is collecting tribute), Trqqiz 'has cursed/berated'$^{?}$ (*zm̃p-de* : CLuw. *zamm-ant-* 'bewithed', etc.) Xeriga's allotment: acc. sg. *xzzãt-ã … xeriga-z-ñ*. - Here and in several other cases, Trqqiz (according to Xerẽi) seems to consider Xeriga's quota - for offerings both to himself and to Zeus - as insufficient. That is why Xerẽi is replacing (vb. *trppala-*) a traditional feast for the tax-payers by an additional tribute-delivery (instr. *(e)ri-psse-di*). The str. 44d.XIV is as follows:

(a) *xzzãt-ã=pe: trqqi<z> [t]rm̃mil-e: zm̃p-de eset-i: xerigaz-ñ:*

'Also (*-pe*), Trqqiz has berated$^{?}$ (*zm̃p-de*) Xeriga's allotment (*xzzãt-ã*) [which is due to Trqqiz] for peace$^{?}$ / well-being (dat. sg. *eset-i*) for (= of) the Lycians'

(b) *epe-qzz[-ẽ] trppala-u: (e)ripsse-di: prllel-i: kedi=pe:*

'Therefore/that's why (*kedi*) I'm also (*-pe*) replacing the *epeqzze*-feast of [= in] Aperlai with an [additional] tribute-delivery (instr. *(e)ri-psse-di*)'

(c) *ñt[(e)=ẽ/e]nẽ: epri=ke: zit-i: kal-u:*

'And (*-ke*) then/further (*ñt[e]*) I'll tie$^{?}$ it (acc. sg. *[-ẽ/e]nẽ* = *epeqzz[-ẽ]*) to the next tribute-delivery (dat.-loc. sg. *epr-i … zit-i*)'. [Altern.: vbl. form *[ẽ]nẽ … kal-u* ?]

For *eset-i*, *asata-**, cf. DLL:115 & GL: 5, s.v. *ahata* ('Wohlergehen', as per Hajnal).

For the vbl. form *kal-u*, cf. Ht. *kaleliya-* 'tie up' in the note 5, next.

5. Two types of isoglosses: A. Hittite-Milyan; B. Milyan-IE.

A. Hittite words of IE. origin with cognates only in M[ilyan]

aimpa- 'weight/burden', vb. *impai-* : M. ***ãpi-*** 'impose' (+ acc. coll. *[z]at-a* 'taxes')

ak(k)-, ek(k)- 'die; be killed'; ***akkann(a)-*** 'death' : M. ***ekãna-*** 'victim' (for Zeus): *ekãn-ẽ: kuprim-i: pzzi-ti* '… determines the zest$^?$ (noun *k.*) of victims (gen. pl. in *-ẽ*)'

alwa-nza- 'sorcery' : M. noun ***alba-*** (strong potable; to Anat. **alwa-*$^?$); verb *alba-* 'to treat (men) to *alba*'; cf. (?) M. *elu-* 'libate'$^?$, 1-sg. pres. *el-u-wi* (see entry *welp-u-*), to IE. base **alu-* (:Germanic **alu-þ-;* refers to sorcery and intoxication; cf. DIER^3: 3)

halluwai- 'violence, brawl, quarrel' : M. ***xlu-sa-*** id. (DLL: 136) < **halluw-essar* (?)

har(k)- 'hold, have' <IE. *h_2*er*($\hat{k}$)*-* id. : M. ***xra-*** 'keep' (+*mlu* 'pledge') [not 'to offer']; for M. … *xra-di: waxs-a* 'keeps watch on …', cf. Ht. *sakuw-a hark-* 'keep an eye on'

hu(e)sa- 'spindle' (<IE. vb. *h_2^w*eys-* 'wind, twist') : M. ***xus-tte-*** 'dexterity, agility', denom. ***xus-ti-*** 'wrest out'$^?$ (at tough negotiations); noun *xuz-r-ñta-* 'protection'$^?$ (syn.: *pas-ñta-*) < M. base ***xuz-r-*** (DLL: 137) [matches Russ. noun ***вихрь*** 'twister']

huittiya- 'draw, pull, pluck, drag' : M. ***qtti(je)-*** 'drag away, steal$^?$' (rite violation)

hul-a- 'wind, twist' < IE. *h_2^w*el(H)-* id. : M. ***qla-, qel-ẽn-e-*** 'preserve', abl. *qi-ql-ẽni-re-di … qidra-sa-di* 'from the supplies from raids/fights' [not to Ht. *hulana-* 'wool']

hulle- 'smash, defeat' < IE. *h_2^w*el*h_1*-* : M. ****qali-*** in *zri-qali-* 'Top fighter'$^?$ (= Xerẽi)

kal-el-iya- 'tie up, truss' (< denom. IE. **kl*h_1*-el-*, EDH: 429f.) : M. 1-sg. pres.-fut. *([ẽ]nẽ …)* ***kal-u*** 'I'll tie (X to Y)': archaic IE. root **kel*h_1*-*, preserved in Milyan only

kant- '(einkorn) wheat' : (?) M. ***kãt<a>-qe-*** (a treat for the storm-god); for *-qe-* cf. *kap-sa-qe-* 'tidbits'$^?$ (= 'small things'; next entry); *km̃-qe-* 'booty stuff'$^?$; **etr-qqe-* '?'

kapp(a)i- 'small' (< IE. **kemb-*): M. ***kap-sa-qe-*** 'tidbits' (cf. entry *kant-* for M. *-qe-*)

kī-ta- '(priest-)reciter' : M. ***kiki-*** or *kiki(je)-* 'recite' <IE. *$g^{(w)}$*eH(y)-* 'sing' (LIV^2: 183)

lā(-ye)- 'release' : M. ***li(je)-*** id., in: *mle-z … mir-e:* ***li-de****=be: (a)lbiẽi: trelewñn-e* 'The cup-bearer released treats (*mlez*) to the Trallians, the commoners' (appos. in d.pl.)

lap(p)- 'glow' : M. ***lẽm̃pe- /lẽp-ri-*** 'heat, embers': dat.-pl. phrase *tm̃m-e … lẽm̃p-e* 'to smokes … flames'$^?$ (preparing offerings); feast instruction: *ker-i lẽpr-i -j- asxxa* 'secure (=2-sg. imp.) heat for the *keri*-feast!' [no 1-sg. pret. *as-xxa*, to *as-* 'do']

maskan- 'atonement, payment, bribe, gift', *mask-isk-* 'give presents': M. inanim. noun ***masxx-m̃*** 'allotment'; cf. *xez-m̃* id., *(a)l[b]-m̃* (to *alba-*, a beverage); *-m̃* < **-men*

mau-, ***mu-*** 'to fall' : M. ***maw-a-*** '(re)move', *maw-il-i-* 'assessor'$^?$ (lit. 'remover', type: *qñt-il-i-* 'menager'), all to IE. **mewH-* 'push away' (cf. EDH: 564f., DIER^3: 57)

muk-essar, a rite : M. ***muxssa-*** id. [x-s: < g-s:], loc. sg. *muxss-a* 'during a *m.*-rite'

muri- 'grapes'; ***muriya-*** 'bunch up, make tight' : M. ***mur-i*** 'for a wine party'$^?$; adj. *murei(je)-* (type: *nei(je)-*) : *mur-ẽn-e-* 'invigorate' (syn.: *muwa-*); 44c (a chiasmus): *tuw-i=pe=ne: padre-te: xeriga: waxs-a: murei: sebe=zri-gal-i: nei tal-ã* 'X. presented (*padr-e-/pdur-a-*) it (*-ne*), an invigorating feast, to the guards, - and to the Top fighter (= to Xerẽi) - a royal (= *nei*) *tala*-treat' (cf. acc. pl. *neiz tuwiz* 'royal feasts') ___pah-s-___ ‘protect, defend’ : M. ___pas-ñt-a-___ ‘protection’; ___pas-b(b)a-___ ‘troop; guards’

___parā-uwa-nt-___ ‘supervisor’ : M. ___pr-uwa-___ ‘observation, control’ in loc. sg. _pruw-a_ ‘under control’ (refers to a feast with strong potables); adj. _pru-x-ssi-_ <_*pru(w-a)xa-_

___patt(a)i-___ ‘run, race, flee, fly’ (< IE. _*peth_$_1$_-_ ‘to fly’) : M. ___ptt-il-i___ ‘for swiftness/agility’

___pisen-___ ‘man’ : M. ___pisẽi-___$^?$ (type: _terẽi-_); 44d.26: _trm̃mil-e…_ ___pis-e___ ‘for the Lyc. men’

___sapas-alli-___ ‘scout’; vb. ___sapas-iya-___ : M. ___saba-___ ‘watch(ers)’; ___sebe-___ ‘observe, inspect’$^?$

___sarhuw-ant-___ ‘belly+’ <_*sorHuw-_ (> Gr. ‘ορύα) : M. ___zrqq-i-___ ‘eviscerate’ <_*sr̥H_^{w}_-iye-_ (depiction of enemies, plundering Lycian storehouses; this leads to a war: 44c.VI)

___sāru-___ ‘booty’, vb. ___saruwai-___ ‘plunder’ : M. ___zrbb-la-___ ‘gains’ <IE. _*sór-u-_ < _*ser-_ ‘grab’

___taksatar / taksann-___ ‘level’ < ‘unification’ (EDH: 815) : M. ___tes-ẽn-i-___ (mixed drink: shake?) <___*tas-ãn-a-___< An. ___*taksanna-___; 44d: _me tu=pe=ne=tesẽn-i: qñz-a: prijelij-a_ [all.] ‘and also (_me_ + _-pe_), place (_tu_) it (_-ne_), the _t._-shake, to the meals of the noble ones!’

___tariya-nt-___ ‘exhausted’ : M. allat. ___trij-a___ ‘for the Exhausted one’ [=storm-god] (55.V)

___tar(k)u-___ ‘to dance’: ___tru(i)je-li-___ (festivity after warriors’ bringing booty from raid)

___*uhhuwa-___ ‘valuable, dear’ (?) : M. ___uguwa-___* in acc. sg. _uguwãm-ã arm̃p-ã_ (= Arma)

___ūpp-___ ‘rise’ (sun) : M. ___uple-____si-_ ‘noble’$^?$ < IE. adj. _*up(s)-elo-_ ‘high’ (cf. Ptk.-II: 832)

___weh(esk)-___ ‘to turn, patrol’ (< IE. _*weh_$_2$_-_ ‘turn around’, LIV^2: 663) : M. ___waxs(s)a-___ ‘guards, warriors’$^?$ (formally = Ht. _wah-essar_), ___waxsi-___ ‘Guardian’$^?$ (:Car. PN _uksi_?)

___wije- / u-(i)ye-___ ‘send (here)’: M. ___wije-dri-___ ‘junior officer(s)’, lit. ‘messenger(s)’$^?$

___zē-___ ‘to cook’ (<IE. _*tyeh_$_1$_-/tih_$_1$_-_ > Lat. _tītio_ ‘fire-brand’, EDH: 1033) : M. allat. phrase _lusalij-a:_ ___zẽn-a___ ‘for a fiery broiling’$^?$ (:HLuw. _lus-lus-_ ‘to burn’; _luza-li-_ ‘sacrificial’).

B. Milyan words of IE. origin without cognates in other Anat. languages

___*ẽpl-___ (in _er-ẽpli-_ ‘pot, container’) < IE. ___*en-pleh___$_1$___-___ ‘fill’$^?$ (LIV^2: 482); cf. _plluwi_ below

___k<ñ>ta___ (Schürr’s emend., 55.V) ‘heat’ < IE. ___*(s)kend-___ ‘shine, glow’ (:LIV^2: 554) ___kñt-re-___ ‘feast’$^?$ < IE. ___*kn̥d-ró-___ : M. _k<ñ>ta_ ‘heat’, above; _kñt-re-_ formed as _suk-re-_ ?

___kuptt-le-___ (a smoked$^?$ dish; suff. _*-ló-_$^?$) < IE. ___*kop-ut-___$^?$ ‘soot’ < vb. ___*k___^{w}___eh___$_1$___p-___ ‘seethe’ (IEW: 596f.; LIV^2: 374) [> Russ. noun _копоть_ ‘soot’; trans. vb. _копт-ить_ ‘smoke’]

___lbbe-we-li-___, adj. to _*lebe-we-_ ‘booty’ (syn.: _lelebe-_) : _lab-a_ ‘takers’ < IE. ___*labh-___ ‘grab’

___madra-ne___ ‘to delight/gratify’ < IE. ___*med-ró-___ ‘joy’ <___*med-___ ‘voll/satt werden’ (NIL: 463); 55.I: _pleli-z: madrane: wirasa{ja}j-a …_ _lijai-z_ ‘(sets hope on pledge) to delight /gratify the Phellian nymphs at the servings (_wirasaj-a*_)’: nom. pl. used for acc. pl.

___mlu-___ ‘pledge’ [not ‘offering’], acc. _ml-u_ < IE. ___*mléwh___$_2$___- / mluh___$_2$_-_ ‘speak’ (LIV^2: 446)

___ner-e___ (dat. pl.) ‘to the river-deities’ (adj.: _ner-ije-_) < IE. ___*nerH-___ ‘dive’ [> Slav., etc.]

___-ple-___ ‘-fold’, _tbi-ple-_ ‘two-fold’ (gen. pl. _-ẽ_) < IE. _*dwey-pló-_ < vb. ___*pel-___ (IEW.: 802)

___pleje-re-___ noun ‘plenty’, adj. _plejere-si-_ ‘rich’ < IE ___*pleh___$_1$___-___ ‘sich füllen’+ (LIV^2: 482)

plluwi(je)- ‘of property/wealth’$^?$ [not ‘Phellos’] < IE. **_*pl̥h$_1$éw-_** ‘viel’ (LIV^2: 482^1)

prijãmi- ‘cherished, beloved’: PN Priam < IE. **_*preyH-_** ‘vertraut sein’+ (LIV^2: 490)

puke- ‘to rescue’ (obj.: *zrẽtẽni*-Xerẽi) : (?) < IE. **_*bheug-_** ‘escape; get free’ (LIV^2: 84)

qerei-mi- ‘heated, agitated’ (of a crowd) < IE. *****g^{w}her-*** ‘become warm’ (LIV^2: 219)

sap-al-i (loc. sg.) ‘during a *sapale*-ritual’ [altern.: attr. to *zppl-i*] (for Arma = god of the dead in Mil. texts) < IE. **_*sep-_** ‘(richtig) behandeln, (in Ehre) halten’ (LIV^2: 534)

seke- ‘dry up’ < IE. **_*sek-_** id. (LIV^2: 523f.); 44d: *[n]i seke-tu: ewẽne zus-i: zbal-i t[ije]* (<IE. _*dheh$_1$y-_) ‘May not dry up the v[essel] for Zeus to drink at/during *zbale*-meal!’ : Lyc. acc. *zbet-ẽ* ‘offering’ : Luw./Ht. *zuwai-* ‘eat’; M. *ewẽne* to Ht. *akuwanna*

*sla- (:*ura-sla-* ‘great offering’) <IE. **_*selh$_1$-_** ‘take’ : Goth. *saljan* ‘offer’ [Slav. ‘send’]

suk-re- (strong beverage for men; libation for gods) < IE. **_*suk-ró-_** ‘agitation’ : Lith. *sukrùs* ‘agile, nimble’ (IEW: 914); all to IE. **_*sewk-_** ‘turn, wind’ (cf. LIV^2: 540)

urt(t)-u-, noun ‘repay, return’ > ‘tribute, tax’; adj. *urtu(wa)-* ‘tax-related’ [not to *ura-* ‘great’, as in *ura-sla-*]; possibly to IE. **_*wert-_** ‘turn around’, etc. (cf. LIV^2: 691)

welp-u- in *welpu-ti* ‘sets hope on (the nymphad)’ [not ‘versagen’; cf. s.v. *madrane*; vbl. type: *elu-*]; adj. *welpu-mi-*‘reliable’ < IE. **_*welp-_** ‘set hope, rely on’ (LIV^2: 680).

6. A few examples of revised Milyan etymologies

[‘A’ refers to the iscription of Antiphellos; ‘X’ refers to the Xanthos text]

abura- ‘enforcers’; *eburẽni-* ‘secure, pile up’ (*ebu-* ‘hamper’) : Ht. *epurai-* ‘dam up’+

alba-, *albãm-a*, inanim. *(a)l[b]-m̃* (strong potable), *alba-* ‘treat to *a.*’ < **alwa-* ‘magic’$^?$

alγ-ãn-a (coll.) in: *klleime-di: alγ-ãn-a la-x(a)* ‘I took (vb. *la-*) commision from payments’ [vs. Ht. *halkuēssar / halkuēsn-* ‘supplies for festivals’ < IE. _*h$_2$elg^{w}h-_ ‘to yield/ supply’, except for *h-* and *-ss-* (cf. *ilẽne-*, below: to Ht. *ilessar / ilesn-* ‘sign’?)]

a/ep-ñt-a- ‘takings, booty’ [not vb. *a/epñ-ta-*], *ep(e)-* ‘take’, A : Ht. *app-ant-* ‘taking’

arm̃pa, god of the dead; *arm̃paimi-* ‘imbued by god A.’ : Lyc. *arm̃ma-* ‘moon(god)’

as- or ***es-*** ‘make, do’; only in: *ne* (acc. pron.) *(a/e)s-tte* (3-sg. pret.) [no noun *nestte*]

asxxa, 2-sg. imp. ‘provide/secure’ (:*asa-* ‘security’$^?$) [not 1-sg. pret. to *as-* ‘make’]

atral-a (coll.) ‘personal detachment’, to *atra-* ‘person, self’ [not an adj.; see next]

a[t]rala-mu<w>a, PN *‘Having might of detachment’, not acc. coll. *atral-a muw-a*

ãpi- ‘impose (taxes)’ (A: *[z]at-a: ãpi-ti[=pe a]tl-i: pijanuw-a*) : Ht. *(a)impa-* ‘burden’

ãzi- ‘share’ : CLuw. *ammassa/i-* ‘wipe’ : Greek ‘mow/reap’, EDH: 182f. [no *ãzisse-*]

da- ‘to place’ (2x A); *ñta-da-* tomb’ : Lyc. *ta-*, *ñta-ta-* [but 44d.36 *dadu = d(e) a-du*]

dde, *dd(e)* ‘also’ (X) < Lyc. *dde* id. [no *ddelupeliz* (cf. *lupeli-*); no *ddel-u*, no *p<l>eliz*!]

=de (1) inanim. acc. pron. *-(e)de*; (2) ‘sometimes’+ [*sebe=da* (conj.+ vb.) ≠ *sebe=de*!]

ebi- ‘Local one’ (=Xeriga) : Lyc. *ebi(je)-* ‘local, of this place’ (DLL: 12) [no *ebinube-*]

eim̃ < **ei-mi-* ‘is made’ in: *ẽmu … ãzi: ss-e … eim̃* ‘for me, a share is made for …’

eki- 'area': loc. pl.: _ek-e;_ 'local one(s)': ins. _eke-di_ (+ dat. pron. _(i)j-e_) [no adj. _kedije-_]

_ek-ãn-a-_ '(animal) victim' (in offerings): in gen. pl. _ekãn-ẽ_ : Ht. _akkann(a)-_ 'death'

elu-wi, 1-sg. pres. to _elu-_ 'libate' (no _**elu-u;_ vb. type _welp-u-_) : IE. _*alu-_ (DIER^3: 3)

_ep(e)-_ 'take' (3x A) [not 'back-']; _epe-qzze-_ (meal): lit. 'take-a-meal'? (_qzze-_ 'meal')

erei-mi- 'supply' < _*erei-_ 'to raise' (cf. Lyc. & Luw.); cf. _zi-(e)reimi-_ (_zi-_ 'produce')

erme-d-e, d. pl. to _arma-da-*_ 'announcements' [no vb. _erme-_] : Car. _armon_ 'herald'

_*es-ãn-a-_ 'blood' (type: _ek-ãn-a-_) in d.-loc. sg. _esãna-ml-a_ 'blood-offering'; cf. _mle-_

ẽnari- 'Mighty one' (=Xerẽi) : CLuw _ānnari-_ 'virile' [no _ẽn(e)=ari,_ no noun _ari-_]

ẽtri- 'lower one' (socially) in d. pl. _ẽtr-e_ '(Atralamuwa provides treats) for the _ẽtre_'

ilẽne- 'land-lord$^?$'; ins. _ilẽne-di_ + d. _(i)j-e_ [no adj. _ilẽnedije-_] : ?Ht. _ilessar/ilesn-_ 'sign'

ire-le-si- 'strange, alien'$^?$ (attr. to _ziw-ala-_ 'laborer', lit. 'payer'); Mil. noun _*ire-le/i-_formally
matches HLuw. _irha-la/i-_ 'frontier post', to _irha/i-_ 'border, frontier; area'

kedi 'therefore / that's why' [no noun _kedi-;_ no adj. _kedije-;_ different: _eke-di_ + _ij-e_]

kiki(je)- 'recite' (subj.: _trqqiz_) [not 'cause to pay', no noun _kille_] : Ht. _ki-ta-_ 'reciter'

_km̃ma-sa-_ 'everyone/crowd$^?$' + _qerei-mi-_ 'heated/agitated' < IE. _*g^{w}her-_ 'get warm'

madra-ne 'to delight/gratify' [not 'meet'] < IE. _*med-ró-_ 'joy'; see note 5B (above)

mle- 'offering; meal' : (?) _*mla-_ in _esãna-ml-a_ (_*es-ãn-a-_, above); not to _mlu_ 'pledge'.

7. Examples of interpretations of relatively transparent Mil. passages

An attentive text analysis of Mil. inscriptions shows that many word combinations are considered in the dictionaries as just one word: _ãzi: sse_ [note the division mark!]; _sse pssẽ; ebi n(e) ube; dde lupeliz; ki lle; ti mlu_ [_ti_ for _ki_]; _masxxm̃ tije; mrγγas(a) uwẽti; muwi lade; n(e) eburẽni; n(e) astte; prij(e) eduli se; ute ñneri; sapali te; kedi (i)je; ilẽnedi (i)je; pad(a) mruwasa; ep(e) edes(i)_ [2-sg. imp. + voc. sg.; this is the 1st - out of 4 - Trqqiz's instructions, probably addressed to Pixre, in 55.VII-VIII]. On the other hand, the noun _ẽnari_ (one of Xerẽi's epithets; related to CLuw. _annari-_) is interpreted as a 2-component structure _ẽn=ari;_ hence a ghost noun _ari-_.

Proper name _a[t]rala-mu<w>a_ (subj. in the last sentence of the str. 44d.XIII), lit. 'Having might of a detachment'), is explained as an acc.-coll. phrase _a[t]ral-a mu<w>-a,_ adj. + noun. - The word _atrala_ exists in Pixre's text, though, - but there it is a noun in the acc.-coll. phrase _prijãm-a … atral-a_ 'cherished detachment', str. 55.IX (cf. Lyc.-Mil. _atra-_ 'person, self'): here _prijãm-a_ is adj., attr. to _atral-a._

There are a number of entries which reflect wishful thinking, for instance:
ddxug[a] (GL: 40; 44d.VI); Schürr's checking clearly shows only _ddxu[…..]._ The context, - with subj. _erikle_(-Xeriga) + 3-sg.-pret. vb. _[pd]ura-de_ 'presented', - requires here a 2-word sequence with the latter form being a 3-sg. pret.: possibly _dd(e) xu[pdi-de],_ cf.

dde 'also' (as in Lyc.); *xupdi-* may mean 'heap up; toss' (ex. 2). The subj. of this sentence is *zuse* 'Zeus' (*zuse* is not a noun in dat. pl.!); this is the 2nd strophe, - out of 3, - where Zeus appears in the Mil. text of Xanthos.

trqq͂nta[..] (GL: 378; 55.IV); only one letter is damaged here, not two; but anyone who is sure that *trqq͂nta* is not a complete form has to look for two more letters at the end, not just one; indeed, a form *trqq͂nta[.]* seems bizarre (see note 1).

The following Mil. passages (exx. 1 and 2) are relatively transparent; they provide some insight into the content of the inscriptions.

Ex.1 (str. 44d.VII, pt. a) is probably a warning to priests not to neglect offerings for Zeus. - The 3 strophes which refer to the libations and offering for Zeus are:

44d.V: The storm-god god Trqqiz is angry (3-sg. pres. med. *stt[ẽ]ni*) since no offering is chosen yet for Zeus (dat. sg. *zin-i*).

44d.VI: Zeus (*zuse*, nom. sg.) doesn't receive a libation from a priest, - so the god has to act on his own.

44d.VII (1st part only): Priest(s) shall watch that libation vessel for Zeus never dries up. - This latter passage is as follows: (1) *[n]i=seke-tu: ewẽne zus-i: zbal-i t[ije]* 'May not dry up a v[essel] for Zeus (dat. sg. *zus-i*) to drink (inf. *ewẽne*) during a *zbale*-offering!'

Dat. *zus-i* matches *zin-i* 'for Zeus' in 44d.V (cf. dat. pl. *zina-s-e* [deities-protectors of Pixre], 55.VIII. - Zeus and his deities have been considered in some ares as the divine protectors of the dead; cf. Mil. str. 44d.III, about 'libations for the 12 protectors of Xeriga' (his sepulcher is mentioned here as well).

For *seke-* 'dry up' cf. IE. **sek-* id. (LIV^2: 523f.) - Yakubovich agrees in principle with the above interpretation (pers. comm.).

Inf. *ewẽne* 'to drink' matches Ht. inf. II *akuwanna* id.; cf. also Palaic vb. *ahuwa-* 'drink'. - Related: Mil. *uwe-* 'libate'; gerund *uwẽti* 'when libating' (sect. 9); *uwemi-* 'libation' (sect. 5); Luw. vb. *u-* 'drink', etc.

Dat.-loc. sg. *zb-al-i* 'for/during a meal' matches Lyc. *zb-et-ẽ* 'sacrifice' (acc. sg.) and Luw./Ht. vb. *zuwai-* 'eat' (EDH: 1040; there is also a noun). - For *zb-al-i* cf. *qrbbl-al-i* (dat. sg.; a libation for the Phellian god Qaja, 55.VII). - Cf. *qrbbl-i*, ex. 2, b.

The above noun *tija/e-* (beverage for men; libation for gods) is represented in Milyan by acc.-sg. form *ti-u* and dat. pl. *tij-e*; it probably originates from the IE. vbl. root **dheh$_1$(y)-* 'suck(le)' (cf. e.g. LIV^2: 138).

Ex. 2 (strs. 44d.VIII-IX) contains a tripartite instruction for feasts, - apparently for the land-tenants (= dat. pl. *trm͂mil-e ... pis-e* 'for Lycian men'), - after they have completed their tribute delivery at a certain location.

Each of the three sentences-instructions ends with a 2-sg. imp. form:

xup[di] (cf. *xupdi-du* 'let one/him heap up …' in a very similar str. 44d.XXII);

slama (cf. *slãma-ti* 'adds/increases [some amount]'; related: Lyc. noun *hlm̃mii-*);

asxxa (cf. *asx[xa-t]i* 'provides/secures [a treat for …]'; str. 44d.XIII). - There is no 1-sg. pret. form *as-xxa* in Milyan inscriptions.

The whole text (pts. a-c) seems to read as follows:

(a) *trm̃mil-e=be=te=ker-i: tre-i xal-i pis-e: xup[di]*

'For the Lycian men (*trm̃mil-e … pis-e*) there (= in this case?), pile/heap up (imp. *xup[di]*) a *keri*-meal (acc. sg. to the noun *keri-* 'meal, feast') in three portions!'

(b) *qrbbl-i: me=ij-e=(a)lbãm-a: psses-i: slama*

'And for them? (*me=ije*), increase/add (imp. *slama*) the *albãma*-beverage in/to the delivery-related goblet(s) (dat.-loc. sg. *qrbbl-i … psse-s-i*)!' [cf. dat. pl. *pssej-e … zirẽpl-e* 'to the delivery-related vessels/containers' in 44c.XII (first sentence)].

(c) *ker-[i] lẽpr-i -j- asxxa:*

'Provide/secure (imp. *asxxa*) embers/heat (acc. *lẽpr-i*) during/for the *keri*-feast!'

Note words: *pis-e* 'for the men' (dat. pl., possibly to *pisẽ-* or *pisẽi-*; for the structure, cf. nom. sg. *terẽi* and Lyc. PN *xerẽi*); cf. Ht. *pisen-* 'man' (EDH: 670).

xup[di] (2-sg. imp.) 'heap up'; cf. 3-sg. imp. in 44d.XXII: *xupdi-du … tre-i xal-i … tri-su* 'let him heap up [pots and dishes] in three portions thrice!'

[Incorrect emendation *xup[.:)]* by Schürr: cf. DLL: 136, and GL: 140f.]

xal-i 'portion' (dat.-loc. sg.) vs. Ht. *hali-* 'ration, portion, share' (cf. HED-3: 23).

For *qrbbl-i* cf. instr. *qrbble-di* 'with the goblets', 44d.I (one of Xerẽi's instructions for a major festivity in Xanthos); note dat. sg. *qrbbl-al-i* 'for a *q.*-libation', above. The form *qrbblali* is not an adj.: it is a noun used in dat.-sg. phrase *priãm-i … qrbblal-i* 'for a cherished *q.*-libation' (Trqqiz's 1st instruction, 55.VII). Adj. *psse-si-* matches *pssei(je)-*; cf. also noun *pss-ẽ* in gen. pl. [not acc. sg.] '(a share) of deliveries', 55.XIII; cf. iter. vb. *pssa-* 'deliver' (clear cognates in Ht.). The noun *keri-* refers to a meal/feast for the tax-payers after they delivered their dues, - as well as for the warriors who have just returned from a raid/battle. Note 44c.IX: Xerẽi [with his warriors] was racing from raids for a *keri*-feast 'thrice twelve times' (*tri-su: qñnãtbi-su*). The noun *lẽp-ri-* (along with *lẽm̃p-e*, dat. pl.) is related to the Ht. vb. *lapp-* 'glow'.

II. Milyan words which didn't make it into the dictionaries (sections 1-11)

1. Last passage in Xerẽi's text: *xñtaba tutl-tu=<p>e* ... [not *xñtaba-tu tetur-e*]

The last (unfinished) sentence of Xerẽi's Milyan text looks like his advice to the future ruler of Lycia, Xerẽi's successor. This sentence (str. 44d.XXIII = 44d.70-71) is presented here in Schürr's revised version (pers. comm.) The former reading of the opening phrase *xñtaba-tu tetur-e* (3-sg. imp. + dat.-loc. pl.) is to be replaced by *xñtaba tutl-tu=<p>e* (noun in nom. sg. + 3-sg. imp. + ptc. 'also', or sim.)

We may note that Mil. *xñtaba-* is always a noun (meanings: 'commander; ruler; lord'). Pace Kloekhorst (*Yazyki mira*: 153), the Mil. nominal [not verbal!] base *xñta-ba-* is not a phonetic variant of the Lyc.[-Mil.] vbl. base *xñta-wa-* 'to rule'; in Milyan, this base appears only once, in a deverbative *xñtawa-z-a* (dat. sg., 44d.67) which seems mean 'for the royalty/rulers'; *-zV-* < *_-tyV-_ (?); there are 3 attributes.

The verb *tutl-* (< *_tu-tul-?_) may mean 'expand / beef up' (or sim.) It seems to originate from the IE. nominal base *_tu-tul-_ or *_te-tul-_ 'swelling' (Lat. *tu-tul-*, Irish *tu-thle*; cf. IEW: 1081), to IE. vbl. root *_tewh_$_2$- 'swell, get strong' (cf. LIV^2: 639).

The interpretation of the last Milyan sentence 44d.70-71 may be as follows:

nei-z=ke: tuwi-z t<r>m̃mil-e: sukr-i: xñtaba tutl-tu=<p>e: trqqñt-i [... ... ...]

'And also (=*ke* ... =*<p>e*), let the [future] ruler expand / beef up$^?$ (imp. *tutl-tu*) the royal feasts (*nei-z* ... *tuwi-z*) for the Lycians, [and let him expand] the *sukri*-libation(s) (acc.$^?$ sg.) for Trqqiz [.........]!' Altern. (end): '... [and] for Trqqiz, for [his] *sukri*-libation(s), [the ... (acc. pl.) $^?$]'.

The noun *suk-re-* (to IE. *_suk-ró_ - 'agitation' > Lith. *sukrùs* 'agile', etc.; IEW: 914) refers both to a libation for the storm-god Trqqiz and to a potable for warriors.

As it seems, the adj. *nei(je)-* [not related to the acc. pron. *ne* 'it'] means 'royal': it refers to treats, presented by a ruler to the Lycians (dat. *trm̃mil-e*), and to the Lyc. commander (dat. *zrigal-i*; see below). The adj. *nei(je)-* may be akin to the Ht. verb *nē- / nai-* 'lead, turn directions' (cf. Accent: 530) < IE. *_neyH-_ 'lead, direct' (LIV^2: 450f.; Mil. verb *nẽnije-* 'direct [provisions to ...]' may be a cognate).

The adj. *nei(je)-* 'royal' is structured as a number of other Mil. adjectives, e.g.:

murei(je)- 'winy'$^?$, to *mure/i-* 'wine-party'$^?$: *mur-ẽn-e-* 'invigorate' (syn.: *muwa-*);
mlei(je)- 'meal/offering-related' (see sect. 5), to Lyc.-Mil. *mle-* 'meal, offering';
pssei(je)- 'delivery-related', to *psse-* 'delivery', *zi-psse-* 'tax delivery' (:vb. *pssa-*).
Note also Lyc. *_ẽñnei(je)-_, to *ẽñne* (DLL: 21; for similar Mil. forms see DLL: 122).

In another ex. (= 2nd sentence of 44c.VIII), Xeriga - the ruler of Lycia - presents, clearly after a war/battle, a 'winy feast' (acc. sg.: *murei* + *tuwi*) to Xerẽi's guards/warriors (*waxs-a*), and a 'royal treat' (acc. sg.: *nei talã*) to Xerẽi himself who appears here as 'Top fighter'$^{?}$ (dat. sg. *zri-gal-i* < *zri-qal-i,* to noun *zriqali-*): *tuw-i=pe=ne: padre-te: xeriga waxs-a: murei: sebe=zrigal-i: nei tal-ã* 'Also (*-pe*), Xeriga presented it (acc. sg. anim. *ne*), a winy feast (acc. sg. *murei* + *tuwi*), to the guards (all. or dat. pl. *waxs-a*), and [he presented] to the Top-fighter$^{?}$ a royal *tala*-dish (acc. sg. *nei tal-ã*)'.

The noun *tala-* (some treat or container with a treat) may match Ht. *talla-* (a vessel), but probably not the Mil. noun *tal-i* 'invocation' (or sim.; dat.-loc. sg.); this latter is related to Ht. verb *talliye/a-* 'pray to, invoke (a deity)', cf. EDH: 819.

Mil. *tuwi-* may mean both 'votive offering' (DLL: 133) and, in most cases, 'feast (for men)'; syn.: *keri-* (above). - An underlying meaning 'display' (of sculpted figures, etc.) appears in the Lyc. hapax *tuw-i* (loc. sg., 44b.37; not 'offering'), cf. Lyc. vb. *tuwe-* 'place (upright)' (DLL: 74) and Mil. vb. *tu-* 'place (as a treat)' : iter. *tu-s-* (see sect. 11).

Dat. sg. *zri-gal-i* (*g* [γ] < *q* [x^{w}]) is a phonetic variant to nom. sg. *zri-qali* 'Top fighter'$^{?}$: one of Xerẽi's epithets. - Mil. *zri-* matches Lyc. *hri-* (related: Mil. *seri(je)-* 'elevate/glorify', end of 44c.XIV). For *_qali-_ 'fighter'$^{?}$, cf. Ht. *hulla-, hulli-* 'smash, defeat' < IE. *_h_$_{2}$_ul-_ / *_h_^{w}_elh_$_{1}$_-_ (Accent: 62).

Mil. verb *padr-e-* is a pendant to *pdur-a-*; both mean 'bring, present' (cf. DLL: 124, for *pdura-*). Both verbs possibly originate from a vbl. noun *_pad-ur-_ 'bringing, delivery' (or sim.): this word-formation type is possibly present in a few other Mil. verbs; cf. *qidri-* 'to race/gallop' < *_qi(je)-_ 'run' (?); *pubra-* 'destroy/damage' (?).

2. Dat. pl. *m̃qr[-e: er]eim-e* 'for allotments to supplies' [no adj. *m̃qreim-e*]

Due to a fracture on the left, several letters have been damaged at the beginning of the lines 42, 43 and 44 of the str. 44d.XIII. - In two cases, the fracture is ignored in the dictionaries, hence non-existing words *busaw{w}ñn[.]la* (DLL: 113; GL: 35) and *m̃qreime* (DLL: 132; GL: 233). - What we really have in each case here is a dat. phrase, consisting of two nouns:

(Line 42) *busaw{w}ñn[-a: a]l-a* 'for the Busan officers/officials', lit. 'for the Busans, for the officers/officials': the former noun is an apposition to the latter, as it frequently happens in Milyan. The phrase is either in allat. or dat. pl. (certainly not in acc. coll.: the dir. obj. here is *xñtab-u*, the opening word of the strophe).

(Line 43) *m̃qr[-e: er]eim-e* 'for the shares for the storages/supplies' (dat. pl.)

The 3rd passage (line 44) shows a damaged form *asx[xa-t]i* '(he) provides (treats to/for ...)'; cf. 2-sg. imp. *asxxa* (see pt. I, note 7, ex. 2). There is no 1-sg. pret. *as-xxa / as-x[xa]* (to *as-* 'do, make') in the known Mil. texts (the vb. *as-* 'make' appears only once, in: ... *-ne=(a)s-tte*, pron. + 3-sg. pret.; there is no noun *nestt-e*).

Mil. str. 44d.XIII is the 2nd (out of 5) in Xerẽi's narration about his journey to several cities, - to collect tribute and reward the locals. - The agent in parts a and b of this strophe is clearly Xerẽi, the narrator: he is presenting treats to two types of recepients: see text below (parts a and b). In pt. c, Atralamuwa provides treats 'for the low-ranking ones': d. pl. *ẽtr-e*.

The form *eluwi* (pt. a) is not a noun in dat.-loc. sg. (as in DLL: 114 and GL: 57). (a) *xñtab-u=pe: kñtr-e: elu-wi=pe: busaw{w}ñn[-a: a]l-a:* 'I'll also (*-pe*) libate$^?$ (vb. *elu-*) the lord$^?$ (*xñtab-u*) at/during the *kñtre*-feast(s)$^?$ for the Busan officials/officers' (lit.: 'for the Busans, for the officials'; see above).

The only form here which can be verbal is *elu-wi*; the only 1-sg.-pres. ending for *elu-* is *-wi*: a form '*elu-u*' is not possible (*elu-* is similar to *welpu-* 'set hope, rely on' < IE. **welp-* id.; see sect. 7, below; 1-sg. pres. to *welpu-* seems to be *welpu-wi**).

For *elu-*, cf. IE. **alu-* '[i]n words related to sorcery, ... and intoxication', DIER^3: 3; cf. also Mil. noun *alba-* (strong beverage) < (?) Anat. **alwa-* 'witchcraft, magic'$^?$; vb. *alba-* 'treat someone to *alba-*' < (?) Anat. **alwa-* 'bewich, cast spell'; cf. Hittite.

The dir. obj. *xñtab-u* / *xñtab-ã* may refer either to a god (as *xñtab-ã* in 44d.II; see below) or to a commander (as in cf. 44c.I) - It is not excluded that acc. sg. *xñtab-u* (part a) refers to a whole group of high-ranking commanders.

In the subsequent passage (b), Xerẽi treats to *alba*-beverage some lower-rank officers (acc. sg. coll. *wijedr-i*; syn.: *al-i*).

The expression *xñtab-u ... elu-wi* 'I'll libate (or: 'I'm libating') the lord' (pt. a) is comparable to *wer[i] ... xñtab-ã: uwe-ti* 'the cup-bearer ... libates (vb. *uwe-*) the lord ...' (44d.II: probably a major libation rite in the royal precinct in Xanthos). Note Xerẽi's words *[w]esãtñni-u qñtb-ẽ: uwa-xa* 'I've libated [the god] Qñtbe of Phellos' (visit to Wzzaije-Antiphellos, 44d.XV). Qñtbe may be identical to the god Qaja of Phellos, libated by Pixre (str. 55.VII: Trqqiz's 1st offering instruction).

(b) *tralij-e: wijedr-i=be: alba-xã: m̃qr[-e: er]eim-e:*

'I've treated to *alba*-potable(s) (1-sg. pret. *alba-xã*) the officers/functionaries (*wijedr-i*) for the allotments (d. pl. *m̃qr[-e]*) [collected/delivered by the *wijedri*] for the Trallian storages (dat. pl. *tralij-e ... ereim-e*)'.

[*tralij-e ... [er]eim-e* is a framing construction in the above sentence; nasalization in *alba-xã* refers to the acc.-sg.-anim. form *wijedr-i*; *-i* = [-ĩ]].

(c) *mulẽn-i=pe: zppl-i: ẽtr-e=be: asx[xa-t]i a[t]ralamu<w>a*

'Also (*-pe*), Atralamuwa provides/secures (3-sg. pres.-fut. to factit. vb. *as-xxa-*), at the *zpple*-place, a *mulẽni*-potable$^?$ for the lower ones / law-ranking ones (dat. pl. *ẽtr-e*)'. [Cf. sect. 3, for the phrase *muw-i la-de* (dat. sg. + 3-sg. pret.): the noun *muwa-* 'strength(ening)' functions as a separte noun only in this case; the Mil. vb. *muwa-* means 'strengthen, invigorate' (syn.: *mur-ẽn-e-*), not 'overpower'].

The above PN *a[t]ralamu<w>a* (lit. 'Having might of an *atrala*-detachment') is the subj. of pt. c, not an acc.-coll. phrase *a[t]ral-a mu<w>-a* (adj. + noun). As for *atrala*, it is a noun: cf. Pixre's 'cherished department': acc. coll. *prijãm-a … atral-a.*

For *mul-ẽn-i* [lit. 'energizer', or sim.] cf. Lyc. PN Mula, lit. 'strong' < **muwalla-* (GL: 225; cf. DLL: 99: Mullijese < **muwalli-esi* 'shall be strong', a Wunschname).

For the nobility, a treat *tes-ẽn-i* (< **taks-ann-i-*, a shake?) is used in 44d.XI.

A 'seven-drink' *s<ep>tãmi-* is to be poured as libation for the 'exhausted' (allat. *trij-a*) storm-god in 55.V. - At the end of this strophe, the noun *k<ñ>ta* 'heat' is used; it is compared with the noun *kñt-re-* (pt. a, above) in the sect. 5.

For *ereim-e* (dat. pl., pt. b: to *erei-mi-* 'supply'), cf. abl. *ereime-di* 'from the supply' (Trqqiz's 2nd offering instruction, 55.VII).

3. Xerẽi acts: *muw-i la-de* 'took … for invigoration (*m.*)' [no noun *muwilade*]

In the dictionaries, the phrase *muw-i la-de* (noun *muwa-* in dat. sg. + verb *la-* in 3-sg. pret., 44c.X) is interpreted as one word: noun *muwilade* (= dat.-loc. pl. to *muwilada-*, DLL: 122; similar: GL: 230); no meaning is suggested.

Actually, we deal here with a sentence (ex. 1) which is structurally very similar to at least 2 more sentences from the Xanthos text (ex. 2 = 44c.VI; ex. 3 = 44c.I):

(1) *al-i: muw-i la-de: epñta-di=sebe: pasbb-ã*

'([He = *zrẽtẽni*-Xerẽi]) took the command (acc. sg. *al-i*) and the detachment /troop (acc. sg. *pasbb-ã*) for an invigoration (dat. sg. *muw-i*) from the takings/ booty' [after-war events; abl. *ep-ñta-di* is a from of *a/ep-ñta-* 'takings, booty', a noun which is closely related to the Ht. ptcp. *appant-* 'taken'].

(2) … *wijedr-i: ñtuwitẽni: pdura-di: sebe=pasb-ã*

'(…) the top commander (*ñtuwitẽni*-Xerẽi) brings both the command (acc. sg. *wijedr-i*) and the troop (acc. sg. *pasb-ã*)' [start of a war, - after an enemy assault].

(3) *sebe: pasb-ã natri: sla-ti: xustte-di: sebe=xñtab-u*

'Natri glorifies/awards (*sla-ti*) with dexterity$^{?}$ (instr. *xustte-di*) both the detachment/ troop (*pasb-ã*) and the commander (*xñtab-u*)'.

[Ex. 3 represents the opening of Xerẽi's Mil. text: 'the commander' (= Xerẽi$^{?}$) and his warriors return with booty from a raid, - and are awarded 'for the shares for the depositary' by the god Natri(-Apollo), Xerẽi's divine patron; cf. sect. 10].

Synonymous nouns *ali-* and *wijedri-* denote a ‘command’, - that is, some low-ranking officers (*wije-dri-* may lit. mean ‘messenger’: to Mil. **wije-* ‘send’ and Ht. *u-iya-* id.); *xñtaba-* means here ‘commander’;

pas-b(b)a- means ‘protective unit, detachment, troop’; to Ht. *pahs-* ‘protect’.

For the above noun *a/ep-ñta-* ‘takings, booty’ cf. structurally similar nouns:

udr-ñta- ‘incantation’ (Antiphellos; cf. CLuw. *utar* ‘word; spell’; see sect. 5);

pas-ñta- ‘protection’ (Antiphellos; cf. *pas-(b)ba-*, above);

xuzr-ñta- ‘protection’ (Xanthos; cf. adj. *xuzruwẽti-* ‘protecting/protective’);

tas-ñta- ‘brazier’$^{?}$ (Xanthos; Lyc. *tah-ñta-* id.); related: Mil. dat-loc. pl. *tss-e* ‘on the braziers/hearths’$^{?}$ vs. Lyc. noun *θθe-* ‘place of sacrtfice’, or sim. (cf. DLL: 75).

4. Treats: (***kãt<a>q-ẽ***) ***[a]ṇa-z, xḷp[p]-ã; (a)ḍa[-z]*** (***kuprim-ẽ***) **[not in dictionaries]**

The str. 55.IV contains a 7-component chiasmic construction which consists of a 2-word designation of the storm-god in allative (*trqqñt-a … [.]pa[r]ãn-a* ‘for Trqqiz the …’) and a 5-component ‘list’ of provisions, preserved/accumulated (verb *qla-*) by Pixre. - The delicacies prepared for the storm-god Trqqiz are:

(1) *kãt<a>q-ẽ … [a]ṇa-z* (gen. pl. + acc. pl.) ‘snacks$^{?}$ (*[a]ṇa-z*) of grains$^{??}$’ (*kãt<a>-* is an emendation for *kãtd-*; letter *d* is similar to *a*, hence frequent misspellings). The noun *kãt<a>-qe-* (type: *kapsa-qe-* ‘small things’$^{?}$) may match Hitt. *kant-* (sort of wheat); for *[a]ṇa-z*, cf. *[an]a-z* (?) ‘snacks’$^{?}$ in 44c.IV: here Xeriga determines (*pzzi-ti*) treats ‘for a wine-party’: dat. sg. *mur-i* (cf. vb. *mur-ẽn-e-* ‘invigorate’). - Cf. also CLuw. noun *anā-hit-* ‘sample, taste’ (at an offering preparation) and vb. *anā(i)-* (subj.: ‘fire’); see CLL: 11f. and HH^{2}: 16.

(2) *xḷp[p]-ã* (acc. sg.), possibly some wine: the noun *xḷp[p]a-* may mean ‘Aleppo’ (thus: ‘Aleppo-wine’ ?); the same identification is also proposed by Schürr (pers. comm.): cf. Lyc. [< Mil.] PN *xlppa-si-* ‘[person] of/from Aleppo’.

(3) *eḍa[-z] … kuprim-ẽ* [or: *(a)ḍa[-z] … kuprim-ẽ*] (acc. pl. + gen. pl.) ‘meals$^{?}$ of choice’, or sim.; for *kuprimi-* (prob. vbl. noun), cf. *kupri-* ‘gratify’ (syn. **madra-*).

The noun *eḍa-*, or *(a)ḍa-*, ‘meal’$^{?}$ seems to match both the adj. *ed-ije-* ‘meal-related’ and the voc.-sg. form *ede-s(i)* ‘meal-provider’$^{?}$ (or sim.: a substantivized adj.); neither is listed in the dictionaries; see below for reasons.

Adj. *ed-ije-* ‘meal(-related)’ appears in *edij-e tik-e*, dat. pl. in 44c.XIII; there is no Mil. vb. *ije-ti* ‘buys’ (though this latter appears in both Lyc. dictionaries).

The phrase *edij-e tik-e* seems to mean ‘for meal-related potables’$^{?}$, matching Pixre’s *tik<a a>di<j>a* (all. or dat. pl.) in 55.XIII: a text later restructured by Xerẽi for his own poem. - Cf. other semantically similar phrases in dat. pl.:

uwem-e: mlej-e ‘for offering-related (*m.*) libations’ (for the storm-god; cf. sect. 5);

tij-e qzz-e … ‘for drinks to meals/meats’ (for the commoners …) in 44d.XXI.

Nouns *qzze-*, *qñze-* (all. *qñz-a*), *qez-m̃mi-* lit. mean ‘slaughter [of animals]’ (:Lyc. *qas-* ‘destroy’, GL: 301) and seem to refer to feasts for men (but not to offerings).

Nouns in dat. pl. *tij-e* (:acc. sg. *ti-u* ‘libation’ for Trqqiz) and *tik-e* (possibly to *tija-ka-**; cf. synon. *ti-d-ñta-*) may originate from the IE. root **$dheh_1(y)$-* ‘suck(le)’.

The voc.-sg. form *ede-s(i)* (above; final vowel may ‘disappear’ even before a consonant) is used at the beginning of the str. 55.VII (Trqqiz’s 1st offering instruction). It is lacking in the dictionaries, being ‘hidden’ in the letter sequences *sepedes* (GL: 320) and *epedes* (DLL: 115); *epe-* is interpreted in DLL as ‘back-’, but this contradicts the context. - A more detailed analysis shows the strophes 55.VII-VIII as Trqqiz’s offering instructions, - all addressed to Pixre and destined for a team of his divine protectors. - Each instruction starts with a 2-sg. imp. form:

(1) *ep(e)* ‘take …!’ (2) *da* ‘put/place …!’ (3) *epe* ‘take …!’ (4) *xi* ‘offer …!’

The acc.-objects are: effigies of a god (1) and a goddess (2) [to be moved to their libation areas]; a libation(-vessel) *palara-* (3) [cf. all. *palaraim-a* ‘for libations (for 12 deities)’]; offerings *ãl-a*, acc. coll. (4) for [12?] deities *zinas-e*, dat. pl.; to **zin(a)-* ‘Zeus’.

In the 1st instruction, Trqqiz uses the above mentioned voc. form *ede-s(i)*; in the 3rd instruction - the voc. form *wzzaije-si*, lit. ‘man of/from Wzzaije(-Antiphellos)’.

The reference to Trqqiz appears at the end of the str. VIII: *trqqiz ki kiki-ti* ‘(it is) Trqqiz who is reciting (…)’ [not ‘makes pay’, or sim.]

Iter. vb. *kiki-* or *kikije-* ‘be reciting’ matches Ht. noun *kita-* ‘(priest-)reciter’; both words originate from the var. **geHy-* of the IE. vbl. root *$g^{(w)}$*eHy-* ‘sing, shout’.

5. Dat. pl. *uwem-e: mleij-e* ‘for meal-related (*m.*) libations’ [no *uwe me()mleje*]

The 1st sentence of the str. 55.V (Pixre’s offering rite) is as follows:

me=uwem-e: mlej-e: pri=ṗe trij-a da-te qir{:}z-ẽ qabalime-di: s<ep>tãm-i: udṛñt-e

‘And also (*m=e* … *=ṗe*), for the offering-related (adj. *mlej-e*, dat. pl.) libations (dat. pl. *uwem-e*), first (*pri*), one/he placed (*da-te*), during incatantions$^{?}$ (loc. pl. *udṛ-ñt-e* : CLuw. *utar*), for the Exhausted one (all. *trij-a* = *trqqñt-a* ‘for Trqqiz’), a seven-drink$^{?}$ (acc. sg. *s<ep>tãm-i*) of [various] shares/ingredients (gen. pl. *qir{:}z-ẽ*, to *qirza-* ‘share’), along with a bovine$^{?}$’.

The form *qirz-ẽ* is gen. pl. in all cases; acc. pl. is *qirz-ã*, to the noun *qirza-* ‘share’.

For the noun in instr., *qabalime-di*, cf. Lyc. adj. *qebelij-a*, attr. to *uw-a* ‘bovines’.

For the loc.-pl. form *udṛ-ñt-e* (to *udr-ñta-* ‘incantation’) cf. dat. pl. *pas-ñt-e* ‘for the [acts of] ptotection’ (to *pas-ñta-* ‘protection’; syn. *xuzr-ñt-a*, all.), etc.

The vb. *da-* ‘put, place’ is used only in Antiphellos; syn. *tu-* appears in Xanthos.

For *mlei(je)-* ‘offering-related’ cf. Lyc.-Mil. noun *mle-* ‘offering, meal’ [different: acc. *mlu*, to *mlu-* ‘pledge’]. - Noun *mle-* is related to the 2nd part of the Lyc.-Mil. compound *esãnã-ml-a* (with var.) ‘blood-offering’ (DLL: 115), used in Milyan only in dat.-loc. pl. form. - The word *esãnã- ‘blood’ is structured similar to *ekãnã-* ‘(animal) victim’ (:Ht. *akkann(a)-* ‘death’; cf. also Mil. gen. pl. *ekãn-ẽ* ‘of the victims’ in an offering rite for Zeus, as depicted in the str. 44d.V).

There exist several adjectives, structured similarly to the above *mlei(je)-*:

pssei(je)- ‘delivery-related’, to *psse-* ‘delivery’, vb. *pssa-* ‘deliver’;
murei(je)- ‘winy’? (cf. DLL: 122 for structure), to *muri-* ‘wine party’?;
nei(je)- ‘royal’ (refers to treats, presented by a ruler).

For the noun *uwe-mi-* ‘libation’, cf. Mil. vb. *uwe-* ‘libate’ (all occasions; *uwa-* in the 1-sg. pret. *uwa-xa*); see sect. 9.

[There is no *uwa/e-* ‘see’ in Mil., - except for some remnants: cf. loc. sg. *pr-uw-a* ‘under supervision’ (feast instruction, 44d.II) vs. Ht. *para-uwa-nt-* ‘supervisor’].

As for the allat. *trij-a* (about the exhausted storm-god: to adj. *trija/e-*), cf. Ht. vbs. *tariye/a-* ‘become weary’ (EDH: 840) and *tarai-/tari-* ‘exert oneself, become tired’ (ibid.: 833) < IE. *terh$_1$-ye- ‘rub, exhaust’ (for some reason, Kloekhorst ignores this etymology).

Allat. forms *trqqñt-a (… [.]pa[r]ãn-a), trij-a, pigas-a* refer to the Lyc. storm-god.

The othography of the str. 55.V is very clear; there is a division mark (colon) both after *uweme* and after *mleje* (cf., e.g., GL: 211, s.v. *meuwe*). - Unfortunately, all researchers ignore the colon after the form *uweme* and spell the opening of 55.V either as *me uwe memleje* or *me uwe me mleje*, - though this doesn’t make sense.

GL: 211 shows *:meuwe me: mle[s]e:* when citing DLL: 77 *me uwe*, conj. + preverb. Despite the colon between *uweme* and *mleje*, a PN *memle-* (in dat. sg. *meml-eje*) is listed in DLL: 98. - In GL: 206, this latter identification is presented as *me:mleje* (not *me:mle[s]e* this time), - and supported, - in spite of the colon.

Dat.-pl. phrase *uwem-e: mlej-e* ‘for the offering-related (*m.*) libations (*u.*)’ (above) structurally matches *pssej-e … zirẽpl-e* in the 1st sentence of 44c.XII (= 44c.58-60, next) which seems to contain a rhetorical question (as also the str. XI).

Xerẽi (now the ruler of Lycia) is speaking:

ki=be [or: *kibe*]*=uwe=neu: pssej-e: qidri-di: laxa-di: zirẽpl-e:*

‘Isn’t yet someone racing/galloping (*ki()be … =ne-u* [< *ne-we] … *qidri-di*) from a raid/raids (abl. *laxa-di*) to the delivery-related produce-vessels/containers?’

The noun *laxa-* ‘fight/raid’ (:Ht. *lahha-* ‘military campain’) is not related to the noun *ul-ax-a-* ‘killer, killing’ (cf. sect. 10).

There are several nouns in Mil. inscriptions which refer to libations.

Both *uwe-mi-* (above) and *qrbbla-li-* or *qrbbla-le-* (in dat. sg. *qrbblal-i*) denote a libation, performed for a male god (storm-god Trqqiz; god Qaja of Phellos). - Cf. the noun *qrbb-le-* ‘drinking vessel, mug’ (or sim.); such vessels were used during feasts ‘for the Lycian men’ (*trm̃mil-e … pis-e*) and for libations for the male gods.

The term *tuwẽmi-/tuwemi-* denotes a libation for the goddess Xba-lada (wife of the god Qaja of Phellos?) or for the female deities, the nymphs.

For the vbl. form *da-te* ‘placed’ or ‘was placing’ in the former sentence of 55.V, cf. *xị[s-t]te* (iter.) ‘was offering’ in the latter sentence (= pt. b) of 55.V, next:

> *sebe kuprimesi k<ñ>ta ẽ: xị[s-t]te -j- epñ)*
>
> ‘And the sacrificer (*kuprime-si*, lit. ‘gratifier’; most probably, Pixre himself) was offering repeatedly (*xị[s-t]te*) later (*epñ*), when (*ẽ*) [there was] heat$^{?}$ (*k<ñ>ta*)’.

For the term *kuprime-si-*, cf. *ede-s(i)-* ‘meal-provider’$^{?}$ and *wzzaije-si-* ‘man of Wzzaije(-Antiphellos)’ which appear in Trqqiz’s instructions, 55.VII-VIII; all these terms apparently refer to Pixre-the-sacrificer (cf. sect. 4, above).

Nouns *k<ñ>ta* ‘heat’$^{?}$ (Schürr’s emend.; pers. comm.) and *kñtr-e* (‘feasts’$^{?}$; loc. pl. in 44d.XIII) may originate from the IE. vbl. root **(s)kend-* ‘shine, glow’ (LIV^{2}: 554).

6. Loc. pl. *ubr-e ñz(-e)*; dat. pl. *ut-e*; nom. sg. *ñneri* [no noun *uteñneri*]

In this section I’ll discuss the difficult strophe 55.XII. It starts with a succession of letters *ubreñzabrala* which seems too long for just one word. The dictionaries list several proposals for splitting up this letter chain into words:

ubreñ zabrala <**ubreñi* + *zabral-a* (DLL: 133 and 137) [but also *abrala* with a note ‘not necessarily complete!’ (ibid.: 112)];

ubreñza-brala, Schürr (as quoted in DLL: 133 and 137);

abrala (GL: 428, s.v. *[z]abrala*), with a remark:

‘Melchert … wollte Nom.-Akk.Pl.n. *zabrala* in 55,7 lesen: Überholt, da gemäβ dem Wiener Abklatsch *ubreñni abrala: uteñneri: rm̃paimi: m̃qri-*(8)*ti:* zu lessen ist’.

As in many other cases, the Wiener Abklatsch is unreliable: according to Schürr’s recent checking (pers. comm.), the text shows *ubreñz*, not *ubreñni*; the vbl. form in this strophe is *m̃qri[.]-*(8)*ti*, and not *m̃qri-*(8)*ti*. - Schürr proposes an emendation *m̃qri[ñ]-*(8)*ti* (*[ñ]* with a question mark), but this word cannot be a 3-pl. form with the ending *-ñti* because the subj. here (*ñneri: (a)rm̃paimi*; see below) is in nom. sg., and not in nom. pl.

So, the only possibility is *m̃qri[s]-*(8)*ti*, - that is, 3-sg. pres.-fut. iter. *m̃qri[-s]-ti*. We may note that other vbl. forms derived from the base *m̃qr-i-* also contain iter. suff. *-s-*. -

The vbl. base *m̃qri-s-* probably means ‘apportion/ration periodically’ and governs nouns which denote treats for gods or men (see exx. below).

Identification of *abral-a* as acc. coll. (cf. DLL: 112 and 137) is supported by the presence of a functionally identical form *ãal-a* (further in the text), - possibly to **anal-a*, as per Schürr (pers. comm.) Its variant *ãl-a* refers to offerings for the deities *zina-si-z* (dat. pl. *zinas-e*) in the Trqqiz-supervised ritual 55.VII-VIII (the offering recepients seem to be Pixre’s gods-protectors). - At least formally, one more noun, *zm̃pr̥-a*, is present in the same sentence (*abral-a … zm̃pr̥-a … ãal-a*), but *zm̃pr̥-a* may be loc. sg., cf. *muxss-a* ‘during evocation(-rite)’; *pruw-a* ‘under control/supervision’; *xab-a* ‘at the river’$^{?}$; or it may be allat.

All the above leads to a conclusion that our text may represent an instruction formulated by Pixre for certain periodical offerings and/or feasts in the future.

Identification of *abral-a* as a separate word in the sequence *ubreñzabrala* suggests an interpretation of the preceding sequence *ubreñz* as consisting of two forms, *ubr-e* and *ñz(-e)*: possibly 2x dat.-loc. pl.; an auslauting *-e* is regularly omitted before the initial vowel of the next word, thus *ñz(e) abrala* < **ñze abrala*. If so, the form *ñz(-e)* is probably a 1-pl. pers. pron. in dat. ‘for us’ (or sim.; possibly, ‘for our sake’): not surpising, since both Pixre and his wife are sculpted on the upper part of Pixre’s sarcophagus.

The pron. *ñz(e)* matches Luw. *anza* ‘us / for us’; cf. also Lyc. adj. *ñzz-ijah-a* ‘ours’, acc. coll. (DLL: 46).

The opening word of this strophe, *ubr-e* (dat.-loc. pl. to *ubra-*?), is probably based on the noun *uba-* or *ube-* (:Car. *upe / ue* [uƀe] ‘tomb’), as in *ub-e* (loc. pl.) / *ub-ẽ* (gen. pl.) ‘tombs, sepulchers’. Such words are used in Milyan in plural: cf. *ub-e* and *ub-ẽ* above (by the way, this word refers only to Xeriga’s sepulcher), cf. also loc.-pl. phrases:

plejere-s-e: [xu]p-e ‘at the luxurious tombs’ [not *[me]=pe*] : noun *pleje-re-* ‘plenty’;
ñtad-a xñnij-e ‘at the tombs of [Xeriga’s] grandmother’ (a ritual description).

For *ñta-da-* cf. Lyc. *ñta-ta-* ‘burial chamber’ (< **endo-dheh*$_1$*-*, DLL: 45); accordingly, Mil. *da-* ‘put, place’ [3x; Antiphellos] matches Lyc. *ta-* id.

The opening phrase of 55.XII, *ubr-e ñz(-e)*, may mean ‘at the sepulcher-site(s), for us (or: ‘for our sake’) …’; though other interpretations are certainly possible.

Now let us turn to the sequence *uteñneri* as presented in the dictionaries:

uteñneri, one word (noun$^{?}$ in nom. sg.), or *uteñ neri* (?), DLL: 134;
ut-eñneri, Schürr (as quoted in DLL: 134);
uteñneri, or *uteñ neri*, or *ut eñneri*, GL: 409.

Actually, we rather deal here with a Lyc.-Mil. noun *ñneri* ‘exorcist’$^{?}$, or sim., - to Lyc. *zum̃mẽ-ñne-* ‘keep (the deceased person(s)) curse-free’ (or sim.; Schürr’s pers. comm.); cf. also the Late-Anat. PN *Zum̃mẽ-ñneri (in Greek versions), - lit. *‘Evil-dispeller’, or sim. (For the noun in dat. sg. or pl. *ut-e* see below).

The attr. *(a)rm̃paimi* modifies the noun *ñneri* ‘exorcist’$^?$; this implies that the subj. phrase *ñneri: (a)rm̃paimi* denotes a priest (?) of Arm̃pa-Arma, the god of the dead in Mil. inscriptions, - hence ‘Arma-imbued exorcist’, or ‘Arma’s priest-exorcist’ (or sim). The priest *ñneri* may have been obliged to periodically provide treats (*abral-a* [libations?] … *ãal-a* [meals, as in 55.VIII]) to the protecting deities and/or to Arma himself: this would shield from evil both Pixre and his wife after they die and are buried in their sarcophagus.

The god Arrm̃pa(-Arma) appears in the str. 44d.III, in connection with a libation for the 12 gods-protectors of the (deceased?) ruler Xeriga: allat. *qñnãtb-a: xuzrñt-a xerigas-a … palaraim-a* ‘… for the 12 protectors of Xeriga for [their] libations’. - These *xuzrñta*-deities match the [12?] deities called *zinas-e* (dat. pl. in 55.VIII): Pixre is providing for them a potable *palar-ã* (acc. sg.) and offering (vb. *xi-*) them the treats *ãl-a* (= *ãal-a* in our str. 55.XII). - Does the noun *ubr-e* refer to these deities, - as dat. pl., - and not to the sepulcher area?

As for the form *ut-e* (dat. sg.$^?$ or pl.; cf. allat.$^?$ *ut-a*, 44c.IX), it is probably related to the noun *ut-et-a-* (a beverage) in acc.-sg. form *utet-u*, 44c.XI. - Cf. also CLuw. verb *u-* ‘drink’; Mil. *uwe-* ‘libate’, noun *uwe-mi-* ‘libation’ (sect. 5); gerund construction *mrγγas(a) uwẽti* ‘when libating the Dark deities’ (sect. 9).

A tentative translation of 44c.XII follows (note archaic phrase *ut-e* … *m̃qri[s]-ti*).

> *ubr-e ñz(-e) abral-a: ut-e ñneri: (a)rm̃paimi: m̃qri[s-]ti: zm̃pṛ-a: qele-i: punamadije-di: ãaḷ-a: tuxara-di)*
>
> ‘In the sepulcher-area (?), for our sake (lit. ‘for us’), the Arma-imbued exorcist$^?$ (*ñneri: (a)rm̃paimi*) will periodically apportion (*m̃qri[-s]-ti*) [the treats] *abral-a* … *ãal-a* for libations/feasts (*ut-e*) for/during a purification-rite$^?$ (*zm̃pṛ-a*) in the precinct (*qele-i*), with a total smoking-out$^?$ (instr. *punamadije-di* … *tuxara-di*)’.

For *tuxara-* cf. CLuw. *tuhhara-* (in Ht. texts). - This may refer to a burnt offering.

For. *zm̃pṛa-* cf. vb. *zm̃p-* ‘curse, berate’$^?$ (Trqqiz’s action) vs. CLuw. ptcp. *zamm-ant-* ‘bewiched’, to **zamn-a-* ‘cast spell’ (or sim.), noun *zamman-* ‘spell, magic’ (?).

In principle, an interpretation of the nouns *abral-a* … *zm̃pṛ-a* … *ãaḷ-a* as acc.-coll. forms denoting treats, would match the triad *[a]ṇa-z* … *xḷp[p]-ã* … *(a)ḍa[-z]* ‘snacks, *xlppa*(wine), meals’ (or sim.) in 55.IV: Pixre’s reference to delicacies preserved by him to Trqqiz (all. *trqqñt-a*); sect. 4, above.

We may note here that, in the Antiphellos inscription, there are at least two sentences, - each containing a 2-word phrase, - with both words separated from each other in the text. - In all other cases (almost entirely in Xanthos), these 2 words clearly reflect a time when they have been ‘neighbors’, - but merged into one word later:

(1) 55.III *ek-e: pleli-z: abura: m(e)=ebei: tiṛbe-ti: zirãpl-a* (vs. 44 *ek-abura*, *(e)k-ebur-e*).

(2) 55.XII …*ut-e ñneri: (a)rm̃paimi: m̃qri[-s]-ti* ...(vs. 44 *t-m̃qri-s-ñte*, 3-pl. past; 2x).

Our interpretation of the ex. 1 (str. 55.III, Pixre's warning to cheaters) follows:

'The security/inforcers (nom. sg. *abura*) in the districts (loc. pl. *ek-e*), Phellians (voc. pl.), will certainly (*m(e)*) smash there$^{?}$ (*ebe-i*) [one's] produce-vessels'.

[In the preceding str. 55.II, Pixre stresses that every land-tenant and all his men must deliver their dues to avoid punishment. - Cf. other voc.-pl. forms: *tutasiz* 'kinsmen/relatives', 55.X; *xbadiz* 'Valley-gods', twice in Trqqiz's tale, 44c.III-X].

As for the ex. 2 (part of the above analyzed strophe), the underlined words in the phrase *ut-e ñneri: (a)rm̃paimi: m̃qri[-s]-ti* are clearly comparable with cases in Pixre's inscription where the form *ut-m̃qrimi* (cf. exx. below) has probably emerged from two neighboring words.

The dat.-sg. form *utm̃qrim-i* (55.X) matches the underlying phrase **ute m̃qrimi* in the same way the sequence *ni-k-m̃qimiz* matches the underlying phrase *ni=ke=m̃qrimiz*: the vowel *-e* has been absorbed by the subsequent *m̃-*; we have:

ut-m̃qrimi* < **ute m̃qrimi vs. ***ni-k-m̃qimiz* < **ni=ke m̃qrimiz*.**

The archaic component *u-* has been preserved only in the old inscription of Antiphellos; the simplification process in Milyan may have been:

[55] *ut-e … m̃qr-* > **ute-m̃qr-* > *ut(e)-m̃qr-* > *(u)t-m̃qr-* > [44] *t-m̃qr-* > *m̃qr-*.

Cf. a formally similar situation with *eke … abura* (above):

[55] *ek-e ... abura* > [44] **eke-abura* > *ekebur-e* > *kebur-e* (*abura* is present as well).

The form *utm̃qrimi* appears in Pixre's short sentence in the str. 55.X (pt. a): *kapsaq-ẽ: pina-u: ut(e-)m̃qrim-i* 'I'm giving [to my vassals/laborers?] small things$^{?}$ (noun *kapsa-qe-*; cf. *km̃-qe-* 'booty-stuff'$^{?}$) for the *m̃qrimi*-apportioning (dat. sg.) for *ut(e)*-feasts/parties (< **ut-e*, dat. sg. or pl.)'. [Pixre seems to speak here to his underlings; similar situations are frequently depicted by Xerẽi in his own narrative].

It is important to underline that there is no dittography in the sequence *pinau: utm̃qrimi* (55.X, above), no shift **tm̃qrimi* > *utm̃qrimi* caused by the auslauting *-u* of the preceding word *pinau* (as suggested in DLL: 131, s.v. **tm̃qrime/i-*). The form *ut-m̃qri-mi* is quite archaic: the situation becomes very clear as soon as this form is compared with an, even more archaic, structure *ut-e … m̃qri[s]-ti.*

There is only one case in Pixre's text (str. 55.I), where the component *u-* is absent in a related form *t-m̃qr-ẽ* (gen. pl. 'of rations'; not acc. sg.) Still, it is not clear that there was no *u-* in the underlying sentence: the division mark (colon) appears in this text 7 times, separating all full-meaning words, - but it is absent between *wirasajaj-a* and *t-m̃qr-ẽ*. This may imply that the underlying structure here was **wirasajaja utm̃qrẽ*.

Next ex. shows the form *t-m̃qri-s-ñte* 'they have apportioned…' in the str. 44d.I: *al-i=ke ml-ẽ mir-e=ke ml-ẽ t-m̃qri-s-ñte: wisid-i: pruw-a* 'they have apportioned treats (2x acc.

sg. *ml-ẽ*) both for the officials (dat. sg. *al-i*) and for the commoners (dat. sg. or pl.$^{?}$ *mir-e*), for/during a wine-party$^{?}$ (dat.-loc. sg. *wis-id-i*) under control/supervision (loc. sg. or pl.$^{?}$ *pruw-a*)'.

[The component *t-* seems not to show any meaning. - The noun *pr-uwa-* 'supervision' has cognates in Hittite. - For the noun *wis-id-i*, cf. vbl. form *wisi-u*, 1-sg. pres., - possibly, 'shouldn't I press out (some *uteta*-drink for …)', in Xerẽi's rhetorical question, 44c.XI; vb. *wis(e)i-* matches CLuw. *wis(a)i-* 'press' (DLL: 134)].

Cf. also sect. 2, for the nominal base *m̃qre-* 'portion, share, quota'.

7. Adj. *lup-eli-* 'sad' : CLuw. noun *lupp-asti-* 'regret' [no *ddel-u p<l>eliz*]

Starting with the strophe 44d.XVII, Xerẽi is describing several events in Xanthos, the capital of Lycia. Ruler Xeriga's funeral and a subsequent oath of the subjects seem to be depicted in the str. 44d.XIX (= 44d.59-62). It is clear that these events are related neither to Phellos (*plluwi* certainly does not mean 'Phellos'; see below) nor to Pixre's Phellian nymphs (*pleliz lijaiz*).

As in several other cases, nom.-pl. forms are used here as acc.-pl. forms, - a situation, typical for Anatolian languages as shown by Yakubovich (cf. SLL: 33).

The 1st sentence of the str. XIX contains two dir.-obj. phrases:

acc. sg. *qlij-u: xupelij-u* 'funerary (*x.*) outfit$^{?}$ (*q.*)' (or sim.), - and
acc. pl. [formally nom. pl.] *lijei-z … lupeli-z* 'sad/mourning (*lup-eli-z*) nymphs'.

Conj. *sebe … dde* apparently means 'and also' (for the Lycian-type component *dde* 'also, in addition' cf. GL: 37f.); *sebe … dde* seems occasionally to match *se=de*.

The relatively complex dir.-obj. structure is as follows: *qlij-u: xupelij-u: sebe=lijei-z: dde=lupeli-z* 'the funerary outfit$^{?}$ and also the [effigies of the] sad/mourning (adj. *lupeliz*) nymphs'.

There probably was a nymphs' altar in Xanthos; cf. in this respect the acc.- pl. phrase *xbada-si-z … lijenuwe-z* 'Xanthian nymphads' (44d.XVI: apparently some of the nymphads of the Xanthos Valley; Xerẽi says here that he used to strengthen [vb. *muwa-*] these nymphads 'with *tuweme*-libations'; cf. sect. 5, end).

The above component *dde* (once *dd*) is apparently an occasional borrowing from Lycian: cf. also Lyc. verb *dde-ze-* 'place/add [a body] to …': it matches genetically the Mil. noun *de-zi-* 'additional placing/delivery'$^{?}$ (cf. data in GL: 41; DLL: 10 and 114). - Mil. adj. *lup-eli-*, - [lup-] or [lũb-], - 'sad, mournful' matches CLuw. noun *lupp-asti-/lump-asti-* 'regret'.

The 3-pl. imp. form *ni … lugãtu* (end of the 1st sentence, str. XIX) can be interpreted as a warning to people at the funeral: 'let them not burn$^?$/damage$^?$ …!' (for *luga-*, cf. HLuw. caus. vb. *luha-nu-*).

The whole str. 44d.XIX seems to read as follows:

(a) *me=qlij-u: xupelij-u: sebe=lijei-z: dde=lupeli-z: ni=uwe: lugãtu:*

'But let them not burn$^?$ (*ni … lugãtu*) the funerary outfit$^?$ (acc. *xupelij-u* + *qlij-u*) and also (*sebe … dde*) the [effigies of the] mournful (*lupeli-z*) nymphs (*lijei-z*) …'

(b) *sm̃mẽt-e: klleim-e qñtil-i=uwe: plluw-i: ml-u x<r>ãti tunewñn-i:)*

'… when keeping (gerund *x<r>ãti*) [their] property(-related)$^?$ pledge (acc. sg. *plluw-i: ml-u*) for the obliging/obligatory payments (dat. pl. *sm̃mẽt-e: klleim-e*) at the management (loc. sg. *qñt-il-i*) for [the sake of the god]$^?$ Tunewñni(-Trqqiz)'. -

If *x<r>ãti* is a 3-pl.-pres. form, the interpretation of pt. b may be: 'They [= the subjects/vassals] shall keep (or: 'are keeping') the property(-related)$^?$ pledge for (or: 'during') the obligatory payments (dat.-loc. pl. *sm̃mẽt-e: klleim-e*) to the management (*qñt-il-i*) for [the sake of]$^?$ Tunewñni(-Trqqiz)'.

For *tune-wñni-* cf. *xbide-wñni-* '[god Natri] the Kaunian'; *trele-wñni-* 'Trallian'. For the gerund *xrãti* cf. 44c.V *uwẽti* 'when libating (the Dark ones)'; sect. 9.

Mil. vb. *xra-* governs dir.-obj. forms *mlu* 'pledge'; *waxsa* 'watch'; *ziwalã* 'hireling'$^?$ (lit. 'payer'; synon. *zaj-ala-*, - structured as *xum-ala-*, a functionary).

For *plluw-i: ml-u* 'property(-related)$^?$ pledge' (acc. sg.) cf. Pixre's words: *mlu[:] xra-u plluw-i: <t>ut-a* 'I'll keep the property(-related) pledge to [my] kin' (55.XI).

Acc.-sg. form *plluw-i* presupposes an adj. *pluwi(je)-* 'of the property / property(-related)'$^?$; *plluwi* is only used as attr. to the noun *mlu* 'pledge'. - For *plluw-i* cf. IE. adj. **pélh$_1$u-/pl̥h$_1$éw-* 'viel' (LIV^2: 482^1). - The underlying IE. root **pelh$_1$-/pleh$_1$-* 'sich füllen, voll werden' may be reflected in the Mil. noun *pleje-re-* 'plenty', cf. adj. *plejere-si-* 'luxurious' (about royal sepulchers); for the structure of *pleje-re-* cf. *qi-ql-ẽni-re-* 'supply' (cf. verbs *qel-ẽn-e* and *qla-* 'preserve, accumulate').

Gerund *xrãti* 'when keeping' (if not 3-pl. pres.-fut. 'they'll keep'; see above) appears in 55.X-XI: Pixre states that he used to strengthen (vb. *muwa-*), with *tuwẽme*-libations, his pledge to the river-deities (acc. *ml-u neri-u*, noun + adj.), and that he will keep a property pledge (*ml-u … plluw-i*) to [his] kin$^?$ (all. *<t>ut-a*, cf. voc. pl. *tuta-si-z*). - For *tuta-* 'kin' (possibly io IE. **teutā*) cf. Lyc. PN Tuti-nimi : Ht. *tuzzi-* 'army' (thus contra Kloekhorst, EDH: 908).

For *sm̃m-ẽt-e: kllei-m-e* (dat. pl.: adj. + noun) 'for the binding/obligatory$^?$ payments', cf. Lyc. verbs *sm̃ma-* 'bind …' (DLL: 58) and *ttl(e)i-* 'pay' (ibid.: 68; cf. 118: Mil. **kllei-* 'pay', *kllei-me-* 'tribute'$^?$ < ptcp. [but there is no Mil. noun *kille*]).

Mil. *tune-wñn-i* (dat. sg.) seems to be Trqqiz's epithet: it is this god who 'imposes taxes' (*[z]at-a: ãpi-ti*, 55.VI), - not the ruler of Lycia. - Accordingly, these taxes have to be paid to Trqqiz, - but since this is not very realistic, the taxes may be payed 'to the manager / management': dat. sg. *qñt-il-i*; cf. Lyc. *qñt-a ti* 'who [is] in charge' (or sim.); Mil. *qñtra* (nom. sg.; some urban authority). The noun *qñt-il-i-* is structured as *maw-il-i-* 'assessor' (lit. 'remover').

In the str. XIX, all seems to be tied to the commander Xerẽi succeeding the deceased ruler Xeriga at a major event in Xanthos. The above interpretation is supported by a broader context: in the preceding str. XVIII, Xerẽi demands tribute deliveries from the nobility for a major 'fiery cooking' (all. *lusalij-a: zẽn-a*); this may explain the warning *ni … lugãtu* 'let them not burn …!' in the str. XIX.

On the other hand, considering the form *lijeiz* 'nymphs' as subj. in the above strophe leads to a profound misinterpretation of the events envolved. Such misinterpretation can be seen in Schürr's emendation *lijeiz: ddelu p<l>eliz* (nom. pl. + acc. sg. in *-u* + nom. pl.; cf. data in DLL: 120) for the phrase *lijeiz: dde lupeliz* [our version: '(and) also the mournful nymphs', dir. obj.; see above].

Schürr's emendation has been made in order to obtain, - by all means, - the adj. form *pleliz* 'Phellian', attr. to *lijeiz* 'nymphs'; hence the text 'corrections' *p<l>eliz* and *ddel-u*, - though *dde* is just a syntactic component, precisely as in Lycian (by the way, Lyc. *ddeu* cannot originate from **ddelu*, cf. DLL: 9f.)

But neither Phellos (*plluwi* per Schürr; but see above) nor the 'Phellian nymphs' have anything to do with the urgent events in the Lyc. capital Xanthos as they are depicted by Xerẽi in the str. XIX.

The phrase *lijeiz … lupeliz* 'sad/mournful nymphs' (nom. pl. used as acc. pl.) matches grammatically Pixre's phrase *pleliz … lijaiz* 'Phellian nymphs' in 55.1:

[eb]añn[e$^{?}$]: ml-u=te=ne=welpu-ti: pixre: lijenuw-i: pleli-z: madra-ne: wirasaj-a{ja}: t-m̃qr-ẽ: lijai-z)

'On this pledge (acc. sg. *ml-u*) to the nymphad (dat. sg. *lijenuw-i*) here (*te* [on the sarcophagus?]), Pixre sets hope/counts on it (3-sg. pres.-fut. *welpu-ti* + acc. sg. *-ne*) in order to gratify/delight (inf. *madra-ne*) the Phellian nymphs during treats/ entertaining (loc. sg. or pl. *wirasaj-a**, lit. 'helping(s)') of rations (gen. pl. *t-m̃qr-ẽ*)'. [Altern.: acc. sg. *lijenuw-i* is an adj., attr. to acc. *ml-u*; no change in meaning].

The component *t-* originates from *ut-* < *ut-e* (dat. sg. or pl.) 'for drinks/ libations', cf. sect. 6; cf. also noun *ut-et-a-* (a potable): see sects. 5.

For the noun *lijenuwe-* 'nymphad' (DLL: 120) cf. acc. pl. *lijenuwe-z* '(Xanthian) nymphads (of Erbbina)'. - In the str. 44d.XVI, Xerẽi strengthened [verb *muwa-*] these nymphads 'with libations': instr. *tuweme-di.*

The base *ma-dr-a-* (:inf. *madra-ne* 'to gratify/delight') probably originates from the IE. noun **med-ró-* 'joy' < IE. **med-* 'voll/satt werden' (LIV^2: 423f.; NIL: 463 f.)

Mil. vb. *welpu-* clearly expresses a favorable action; it can not mean 'refuse'. Mil. *welp-u-* 'set hope, rely on' probably originates from the IE. verb **welp-* with the same meaning (LIV^2: 680). - Cf. also Mil. acc.-sg. phrase *welpum-i … pasb-u* 'reliable detachment' [of Xerẽi] in 44d.XV. It matches semantically Pixre's phrase (in acc. coll.) *prijãm-a … atral-a* 'cherished … detachment' (55.IX). - For *prijãmi-* (2x in Antiphellos) cf. IE. **preyH-* 'vertraut/lieb sein' (LIV^2: 490).

The above phrase *mlu=te=ne=welputi* is presented in GL: 271 as *me utenew elputi* which doesn't make sense; the 2nd character is certainly *l*, not *e*. The appropriate entry here is entitled ":piχre: (Lyk.B) PN?": Tischler doubts about Mil. *pixre* being a PN. - But who, if not Pixre, is the author and the main character of the Antiphellos text TL 55.I-XIII ?

(An earlier version of this section is to appear as a paper in the journal *Historische Sprachwissenschaft*, 2015 [2016]).

8. *ebi=n(e)=ub-e ker-e: seb[e-di]* (nom. + acc. +2x d. pl. + vb.) [no PN *ebinube*]

Erroneous - but frequent - interpretations of certain words in Mil. inscriptions as personal names seem to primarily arise from insufficient attention to a broader context (as well as from disproportional attention to long lists of Lyc. names, - though such names very seldom appear in Mil. texts). - Schürr's unconfirmed identification of 3 opening forms of the str. 44c.IV as a PN *ebinube* is supported in both Lycian dictionaries, - cf. DLL: 114 and GL: 49, - though Melchert remarks in DLL: 'Quite unclear, but perhaps personal name with Schürr'.

We may approach the Mil. text in question as the 2nd strophe of Trqqiz's tale (*leli*) 'to the gods' assembly': dat. sg. *masas-i: tulijew-i* (end of the str. 44c.II).

As per Eichner, Trqqiz starts talking at the very beginning of the str. 44c.III and ends in the str. 44c.X. - In the str. 44c.XI, Xerẽi - now the ruler - starts speaking in the 1st pers.

Trqqiz begins his tale with a depiction of ruler Xerga's actions: *laγr-a: trbb-di: xeriga* 'Xeriga arranges the feasting-tables (acc. coll. *laγr-a*, cf. DLL: 119) …' - It is reasonable to assume that, in the str. 44c.IV, Xeriga keeps acting in a similar manner. This implies that *ebinube* is not some new PN but rather one more reference to Xeriga in Trqqiz's tale. - Actually, only *ebi* (= subj.) is a direct reference to Xeriga in the str. 44c.IV; see next.

The subj. in the str. IV is probably *ebi* ‘*Local* one / der Hiesige’, cf. Lyc. nom. sg. *ebi* to *ebi(je)-* ‘local, of this place’ (DLL: 12). The form *n(e)* cannot be an anaphoric pron. in acc. sg. (anim.) since there is no subsequent noun in acc. sg. This leads, almost automatically, to a translation of *ebi=n(e) …seb[e-di]* as ‘the Local one [= Xeriga]) doesn’t control/observe …’$^?$ (vb. *sebe-* is related to the noun *saba-* ‘guard/watch’$^?$: probably to the Ht. base *sapas-*; see pt. I, note 3, above).

Note the vbl. form *sebe-di* in the str. 44c.X where Trqqiz depicts, - naturally, in a positive way, - the commander Xerẽi (= *zrẽtẽni*-Protector from the preceding str. IX) as controlling/inspecting four Lycian cities, - apparently, after a civil war: […] *sebe-di: qirz-ẽ: ziw-i* ‘(the Protector) is controlling/inspecting (*sebe-di*) [+ 4 city-names in acc. sg.] during the payment (loc. sg. *ziw-i*) of shares/reparations$^?$ (gen. pl. *qirz-ẽ*, to *qirza-* ‘share’)’. 0

In the sentence about the ‘Local one’ (= ruler Xeriga, str. IV), two loc.-pl. forms, *ub-e* and *ker-e*, seem to mean ‘at the sepulchers’ and ‘during meals/feasts’, accordingly; the noun *keri-* ‘feast/meal (for men)’ is used on several occasions. - For the noun *ub-e* ‘at the sepulcher(s)’ [of Xeriga] see sect. 6.

The strophe 44c.IV (= 44c.39-40) seems to read as follows:

(a) *ebi=n(e)=ub-e ker-e: seb[e-di=pe=k]udi: slãma-ti: zrbbl-ã:*

‘The Local one$^?$ (*ebi* = Xeriga), at [his] sepulcher(s) (*ub-e*), during feasts (*ker-e*), also$^?$ (*[-pe]*)$^?$ doesn’t observe/control$^?$ (*n(e)* … *seb[e-di]*) where (*[k]udi*) one expands (*slãma-ti*) the gains/booty’.

(b) *m̃qr-ẽ: mur-i: tupleleimi [seb(e)=an]a-z: sebe=sbirt-ẽ pzzi-ti: lelebe-di: xñtabas-i[:)]*

‘The *tupleleimi* (‘Fight-winner’$^?$ = Xeriga) determines the ration (acc. sg. *m̃qr-ẽ*) for invigoration / wine-party (dat. sg. *mur-i*), snacks$^?$ (acc. pl. *[an]a-z*$^?$), and the ruler’s share (acc. sg. *sbirt-ẽ … xñtaba-s-i*) from the takings/booty (abl. *lelebe-di*)’.

As usual, Trqqiz uses two designations when speaking to, or about, one person; accordingly, there are two, - grammatically identical, - vbl. forms. - In our case, Trqqiz refers to Xeriga as *ebi* ‘Local one’ and *tupleleimi* ‘Fight-winner’$^?$; the two vbl. forms are *n(e) … seb[e-di]* ‘doesn’t observe/control$^?$’ and *pzzi-ti* ‘determines’ (the 3rd form, *slãma-ti* ‘one expands’, belongs to the subordinate clause).

A derisive attitude of Trqqiz (that is, of Xerẽi) toward Xeriga is especially transparent in the str. V where Trqqiz adresses Xeriga directly. The god (anticipating an enemy assault) urges the ruler, - voc. sg. *waxsi* ‘Guardian$^?$’, - not to give strong potable to the warriors, and concludes his advice as follows (note the 2nd voc. form): … *sebe=nẽ: laγr-i: xñtabaimi: slãma zrbbl-ã* ‘… and, Ruling one (voc. *xñtabaimi*), expand (2-sg. imp. *slãma*) the gains/booty not at [your] feasting table!’ - It is possible that *nẽ* represents here both the negation *n(e)* 'not' and the anaphoric pron *-ẽ* which modifies the noun *zrbbl-ã*: '…it, the booty'.

9. *mrγγas(-a) uwẽti* 'when libating the Dark deities' [no adj. *mrγγasuwẽti-*]

This phrase is listed in DLL: 121 as '*mrKKasuwẽt(i)-* (adj.) 'sacred, holy'$^{?}$ (case unclear)'. - In GL: 223, this expression is presented as follows [note a misspelling -ss- for -s-]: ":mrKKassuwẽti: … Mit Suffix *-wẽti* gebildet (vgl. *masauwẽti*)?"

It is also mentioned here that Gusmani has proposed (in 1962) a word-division *mrγγas(a) uwẽti*. This is formally correct: acc. coll. *mrγγa-s(-a)* 'Dark ones / Dark deities' is governed by the gerund *uwẽti* 'when libating'. - As for Masa-uwẽti, it is a Mil. PN (one of many, borrowed into Lycian), where the 1st component equals *mas-a* 'gods': an acc.-pl. form, used only in Milyan. - For *masa* cf. also DLL: 122.

The gerund [< active ptcp.] *uwẽti* '(when) libating' (to *uwa/e-* 'libate', *uwe-mi-* 'libation', cf. sect. 5) both structurally and functionally matches *xrãti* '(when) keeping (a pledge / a hireling)'; *nuniti* 'when announcing (the offerings)'; *trbbẽniti* 'when handing over (everything)'; *qelẽnẽti* 'when preserving / setting aside …'; cf. also Lyc. *hbãti* < **swandi* 'pushing (the 7 [warriors] to death)'. - Altern.: *trbbẽni ti* 'deliver, thou' (2-sg. imp.+ voc. *ti*, 2-sg. pers. pron.; also: *nuni ti* 'announce, thou').

Both the base *mrγγa-* (of the above noun *mrγγa-s(a)*) and Ht. DN *Margwa-ya-* originate from the IE. root **merg*^{w}- 'dark'; only these two Anat. languages have preserved the velar component of the underlying IE. **g*^{w} (Mil. *γ* = [γ^{w}]).

Ht. base *margwaya-* matches CLuw. *marwa-* in the same way as Mil. *mrγγa-* matches Lyc. *mrbba-* (*b* = [ƀ]).

Mil. expression *mrγγas(-a) uwẽti* 'when libating the Dark ones' is used in Trqqiz's warning, directly addressed to the ruler Xeriga, str. 44c.V (= 44c.41-44; next ex.) - Anticipating an assault, Trqqiz advises Xeriga not to give (imp. *ni … pibi* 'don't give') strong$^{?}$ potables to the warriors (dat. *kres-e*) who have just returned from fights [and] raids (abl. *pre-di … l[ax]a-di*). [Cf. also sect. 8, above].

Since such action would break a long-standing tradition, Xeriga chooses to ignore the god's advice, - which results in a disaster, as shown in the str. 44c.VI.

The str. 44c.V now follows; the emended form *[utetu]* equals acc. sg. *utet-u*, to *ute-ta-*, a beverage for men/warriors; it is used by Xerẽi, now ruler, in 44c.XI, a rhetorical question. [Xerẽi says here: 'Shouldn't I press out (some) *uteta* for the internal ones (all. *ñtelij-a*)?'; he seems to refer to his close associates in Xanthos].

(a) *[utet-u]=pe: ni=ke: waxs-i: pibi: kres-e: (a)rm̃pal-i: pre-di: xapax-i: l[ax]a-di: mrγγas(a) uwẽti:*

'But/and (-*ke*), also$^?$ (-*pe*), Guardian (voc. *waxsi*), when libating (*uwẽti*) the Dark ones (acc. coll. *mrγγas(-a)*) for Arm̃pa's good graces$^?$ (2x dat. sg.: *(a)rm̃pa-l-i …xap-ax-i*), don't give [*utetu*(-drink)] to the warriors$^?$ (dat. pl. *kres-e*) [who arrive] from battle(s) [and] from raid(s) (*pre-di … l[ax]a-di*)!' [Arm̃pa seems to be the god of the dead on all occasions; Xeriga seems to relax frequently near his sepulcher, located 'at the abode of the Dark ones' (*m̃rγγd-i*)].

(b) *sebe nẽ: laγr-i: xñtabaimi: slãma zrbbl-ã:)*

'And, Ruling one (voc. *xñtabaimi* = ruler Xeriga), increase (imp. *slãma*) it$^?$ (-*ẽ*), the gains/booty$^?$ (acc. sg. *zrbbl-ã*), not at [your] feasting-table (loc. sg. *laγr-i*)!' [*nẽ* = neg. *n(e)* 'not' + acc. sg. enc. -*ẽ* 'it' (?)].

For *mrγγas(a)* (coll.; type: *km̃ma-sa* 'crowd') the above mentioned *mrγγdi* which may originate either from *marg^{w}ida- (:Lyd. deity Mariwda-) or *marg^{w}ada- (if to CLuw. noun *marwatar* 'blackness', EDH: 562). It seems to refer to the abode of the Netherworld god(s), protector(s) of the deceased and their sepulchers; cf. sect. 6.

10. Mil. *ẽnari-* 'Mighty one' [not *ẽn(e)=ar-i*] : CLuw. *ānnara/i-* 'forceful, virile'

[For phonetics, cf. Mil. *ẽnẽ* : CLuw. *ānnan* 'under'; Mil. inf. *ewẽne* 'to drink' : Hitt. *akuwanna* id.; note also Palaic vb. *ah(u)wa-* 'drink'. - In Milyan, the commander (later ruler) Xerẽi is referred to either by rank or epithet].

God Natri and commander Xerẽi appear in the str. 44c.VII in two hypostases:

First, the Kaunian [Natri] (*xbidewñni*) rescues (*puke-ti*) the Protector (*zrẽtẽni*-Xerẽi) from killers/killing (abl. *ulaxa-di* [not to *laxa-* 'fight/raid' : Ht. *lahha-*]).

Later, the Mighty one (*ẽnari*-Xerẽi) gratifies [the god] Natri of Turaxssa (acc. *turaxssal-i: natr-i*) 'who [*ti* for *ki*], with [his] guards/warriors (instr. *waxsa-di*), has annulled (*mawa-te*, lit. 'removed') the pledge (*mlu*) of (= to) Vištāspa'.

[Xerẽi may have deliberately made the latter phrase ambiguous: who is who?]

The text and our interpretation of the above str. 44cVII (= 44c.46-48) follows:

(a) *ñte=ne puke-ti: xbidewñni: ulaxa-di: zrẽtẽn-i:*

'Further/thereafter (*ñte*), the Kaunian [Natri] rescues him (acc. sg. -*ne*), the Protector (acc. sg. *zrẽtẽn-i*), from killers/killing (abl. to noun *ul-ax-a-*)'

(b) *seb(e)=ẽnari: kupri-ti: turaxssal-i: na{:}tr-i*

'And the Mighty one (subj. *ẽnari*) gratifies$^?$ (*kupri-ti*) the Turaxssan Natri ...'

(c) *ti=ml-u mawa-te: waxsa-di: wizztasppaz-ñ:)*

'… who (*ti* for *ki*), along with the guards/warriors (instr. *waxsa-di*), has removed/annulled (*mawa-te*) the pledge of (= to) Vištāspa'.

NB sound-ornamentation in 44c.VII: (a) *-i -i -i -i* + (b) *-i -i -i -i*. Rhyming in vbl. forms: (a) *puk(e)-ti* vs. (b) *kup(ri)-ti*. [Schürr considers *timlu* an acc. sg. to a 'noun *timla-*', cf. DLL: 130; not possible].

For *puke-ti* cf. DLL: 126: 'expresses favorable action'. - It is not excluded that *puke-* 'save/rescue' originates from IE. vb. **bheug-* 'flee; free oneself' (cf. LIV^2: 84).

Melchert agrees with me (pers. comm.) that Lyc. pron. *ti* is used here for the Mil. *ki* 'who' [cf. *ti* in 44d.7 (?)]; note also Lyc. acc. pron. *[eb]añn[e]* (Schürr's emend.) used for Mil. *ebẽne** 'this' (acc. sg.) in 55.I.

For the noun *laxa-* 'fight, raid' cf. Ht. *lahha-* [not to *ulaxa-*]; note 44c.IX:

> *se=de=ker-i trisu: qñnãtbisu: pre-te laxa-di: zrẽtẽni:*
>
> 'And repeatedly$^?$ (*se-de-*), the Protector was racing/galloping for a *keri*(-feast$^?$) from fights/raids (abl. *laxa-di*) thrice 12 times'.

Yakubovich, who agrees with my interpretation of 44c.VII, proposes for the abl. form *ulaxa-di* a translation 'from killers', instead of 'from killing' (pers. comm.) - For *ul-ax-a-* 'killer' (and factit. vb. **ul-ax-a-* 'kill', lit. 'make dead') cf. *mrss-x-a-* 'cheater/dodger' (noun) vs. 'cheat/dodge' (verb); cf. also *as-xx-a-* 'provide/secure' (2x in 44d), etc.

The verb *kupr-i-* 'gratify'$^?$ ('choose' in DLL: 118) presupposes a noun **kup-re-* < IE. **kup-ró-* 'erwünscht' (IEW: 596; type: *suk-re-* [beverage for gods/men] < **suk-ró-* 'agitation'). The verb *kupri-* seems to refer to providing savory offerings to a god.

Related: *kupri-mi-* 'gratification' [altern.: adj. 'gratifying'$^?$]; it refers to the offerings for Trqqiz (all. *trqqñt-a*, 55.IV), and for Zeus (dat. *zin-i*, 44d.V); cf. sub-stantivized adj. *kupri-me-si-* 'sacrificer' = *'one-of-gratification' (= Pixre in 55.V).

Mil. *mlu* does not mean 'offering'; it appears only in acc. sg. (thus *ml-u* to *mlu-*) and always means 'pledge' (cf. IE. vbl. root *$mlewh_2$-/$mluh_2$- 'speak'; LIV^2). It is usually governed by *xra-* 'keep' or *muwa-* 'strengthen' (not 'overwhelm').

11. Acc. *medu* + 2-sg. imp. *tu* 'place *m.*-beverage (for...)' [not *me=d<e>=tu*]

Mil. vb. *tu-* doesn't appear in the dictionaries, though its iter. base *tus-* does (it is present in Lycian as well). - Vb. *tu-* is used in Mil. texts several times, - always as 2-sg. imp. *tu* 'place (as a treat)'; it governs the noun *medu* (= CLuw. *maddu* 'wine') in the str. 44d.XVIII (see below). - Mil. verbs *tu-* and *tus-* are used only in the Xanthos text; the Antiphellos inscription shows *da-* 'to place' instead (2x).

Xerẽi's instructions in 44d.XVIII (= 44d.56-59) with *medu tu* are addressed to *mãmre* (voc. sg.), - an overseer of offering and feast preparations in Xanthos. A broader context depicts events after Xeriga's death (indirectly reflected in 44d.XVII) and before his funeral (44d.XIX; see sect. 7).

The 2-sg. imp. *tu* 'place (as a treat)' appears 2x in the str. 44d.XI (= 44d.34-37):

(a) *me=muni: trbb-di: tuw-i: uwadr-a:*

'And/but the *muni*(-functionary) arranges / hands over (*trbb-di*) everything (acc. coll. *uwadr-a* [altern.: 'bovines'; cf. Lyc.]) for the *tuwi*-feast (dat. sg. *tuw-i*)'

(b) *me=tu=pe=ne=tesẽn-i: qñz-a: prijelij-a:*

'And/but also (*me … -pe*), place (2-sg. imp. *tu*) it (*-ne*), the *tesẽn-i* (acc. sg.: a potable), to the meat dishes (all. *qñz-a*) of the foremost/noble ones (adj. in allat., attr. to *qñz-a*)!' [Altern.: noun in all. *prijelij-a* 'for the noble ones'].

(c) *me=de=tu xezm̃ xbadas-a:*

'And place it (*-de*), the allotment (acc. inanim. *xezm̃*), for the Xanthians (allat.)!'

The form *tu* is the only one which may be verbal in pt. b (above); *tesẽni* cannot be a verb since this word is introduced by the anaphoric acc.-sg. pron. *-ne*.

Both *tes-ẽn-i* (lit. 'mix' if from **tasãna- < *taksanna-*) and *mul-ẽn-i* (lit. 'energizer') probably refer, in their appropriate contexts, to potables served to the guests during a feast/meal; for the suff., cf. *sek-ẽni-* (a roast ?), below.

The noun *xezm̃* 'allotment' (type: *masxxm̃*, a rite) is synonymous to the related anim. noun *xzzãta-*, cf. CLuw. *hizza-* 'hand over' and Ht. *h(a)ink-* 'bestow, offer'.

Allat. *xbadas-a* (to the noun *xbada-si-* 'Xanthian') matches allat. *prijelij-a* 'to the nobility / foremost ones'. For *xbada-si- < *xbada-* 'river-valley', cf. *tuta-si-* 'kinsman/relative' (substantivized adj. in voc. pl. *tutasiz*) to *<t>uta-* 'kin'.

Voc.-pl. (= nom./acc. pl.) *xbad-i-z* means 'Valley gods': Trqqiz addresses them twice in his tale. - There is no dat.-pl. *xbad-e*, referring to the '(river) valley' (pace DLL: 135). In both Mil. inscriptions, the 3-sg. pret. *xba-de* means '(Trqqiz) assigned/used to assign (guards to/for ...)'; it appears twice in 7-component chiasmic constructions, depicting Trqqiz's supervision of libation- and offering-preparations. The verb *xba-* *'attach' matches CLuw. *hapai-* 'attach' (cf. CLL: 55).

The above phrase *medu tu* is used in the str. 44d.XVIII (= 44d.56-59) where Xerẽi mentions the security/enforcers (*(e)kebur-e*, dat. pl.), - possibly as a concealed threat which is meant for the affluent, - but tardy, - tax-payers.

This strophe seems to depict an offering preparation, announced (verb *nuni-*) to the gods. The offering, - and probably a feast (which routinely follows an offering), - seems to be planned for the funeral rite for the deceased ruler Xeriga. (Both the funeral of the ruler and the oath by the subjects are depicted in the subsequent str. 44d.XIX; see sect. 7).

- Str. 44d.XVIII seems to read as follows:

(a) *atlas-i: ne=(a/e)burẽni: trm̃milijẽti: (e)ripss-ẽ: tm̃pewẽti:*

‘Milyan gentry/elite (voc. sg. coll. *t. … t.*), secure it (2-sg. imp. *(a/e)burẽni* + acc. sg. *-ne*), [your] own/personal tribute-delivery (2x acc. sg.: *atla-s-i … (e)ri-pss-ẽ*)!’

(b) *sebe=i=te[:] sẽkẽn-e: mãmre (e)kebur-e: medu tu:*

‘And here, right now$^{?}$ (*sebe=i=te*), [cook] Mãmre (voc. sg.), place/serve (2-sg. imp. *tu*) a *medu*-beverage (acc. inanim.) to *sẽkẽne*-roasts$^{?}$ (dat. pl. in *-e*) for the security/enforcers (dat. pl. *(e)kebur-e*) …’

(c) *lusalij-a: zẽn-a nuniti: xruwasa-z:)*

‘... when announcing$^{?}$ (gerund *nuniti* to vb. *nuni-*; *-it-* = [-ĩd-]) [to the gods?] the offering-provisions$^{?}$ (*xruwasa-z*) for a flaming/fiery broiling$^{?}$!’ (all. *lusalij-a: zẽn-a*, adj. + noun; cf. Ht. vb. *zē* - ‘cook’, EDH: 1033).

[Altern.1: ‘Announce$^{?}$, thou (2-sg. imp. *nuni* + voc. *ti*, - that is, Mãmre), the offering provisions …’ (etc.)].

[Altern. 2: *nuniti* = 3-sg. or 3-pl. pres.; this seems much less likely].

The imperfective vb. *ebur-ẽni-* ‘secure’ is structured as *trbb-ẽni-* ‘hand over’ (syn.: *trbb-*); similar: *mur-ẽne-* ‘invigorate’ (syn.: *muwa-*); *qel-ẽne-* and **qi-ql-ẽni-* ‘preserve’. - Mil. suff. -*ẽne/i-* matches Ht. *-anna/i-*. - The suff. var. *-ẽni-* may have been a part of the verb *nuni-*, if to **nu-ẽni-*; for the root *nu-* ‘announce$^{?}$’ cf. IE. **newH-* ‘shout’ (LIV^2: 456).

The noun *tm̃pewẽti-* ‘forceful ones’, or ‘gentry/elite’ (synon.: *tm̃pe*, voc. sg. in a semantically very similar strophe 44d.XX) is also used in a 4-component dir.-obj. phrase 44c.XI: *tuburi-z: uple<s>i-z: s(e)=iketesi: arppaxus{:}ẽt-i: tm̃pewẽt-i:)* ‘the noble (*u.*) Tuburans as well as$^{?}$ (conj. *s(e)-iketesi*) the elite (*t.*) of Arppaxu’s [descent]’.

Mil. noun *sẽkẽn-e* (dat.-pl. to *sẽk-ẽn-i-* ?) is related to the Lyc. *hẽken-e* (dat. pl.) in the sentence N-324.25 *se=de=hẽken-e: ñtẽml-ẽ ta-di* ‘… and (he) is placing / shall place (= ‘make’) a hearth (or sim.: acc. sg.) for roastig / broiling …’

For the Mil. vbl. root **sẽk-*, cf. IE **senk-* ‘burn’ (IEW: 907; DIER^3: 78).

The noun *medu* is genetically identical to CLuw. *maddu*. - As it was mentioned above (pt. I, note 1), the Lyc. and Mil. words with *-b-* < IE. **-bh-* and *-d-* < IE. **-dh-* are immune to Čop’s Law.

The 2-sg. imp. form *tu* is also used in Xerẽi’s feast instruction 44d.XI: *me=tu=pe=ne=tesẽn-i: qñz-a: prijelij-a* ‘And place the *tesẽni*-shake (?) to the meat dishes (all. *qñz-a*) for the foremost ones (all. *prijelij-a*)!’

The above exx. show a typical structure ‘provide a beverage to meals for …’; it is used both by Pixre and, - quite frequently, - by Xerẽi; cf. Shevoroshkin: 2014.

III. A problem with the *Glossar des Lykischen*

As A. Kassian writes at the beginning of his review of the *Glossar des Lykischen* [GL], 2007 [in: *Babel und Bibel*, 6, 2012], "Sadly enough, two large publications [of 2002] dealing with Lycian (especially Lycian B) are not considered in the dictionary: Ševoroškin.V.V., Word Combinations in Milyan and Lycian Inscriptions, … *Studia Linguarum* 3 [= StL = *Gs. Korolëv*], ... Ševoroškin.V.V., Mylian Passages with *neu* and *ni(-ke)*, … *Anatolian Languages* [= AnL]".

Kassian adds that the paper from the *Gs. Korolëv* is mentioned in the GL list of references, "but in most cases its data are not included explicitely in the vocabulary entries". - Actually, at least four GL entries contain my materials from the StL, cf. GL: 41; 122; 218; 353, - but over 200 StL identifications are not even mentioned in the GL.

Then Kassian says: 'Thus the following data should be added to the book under review. In the rest of this review, I will adduce data from the lexical sections of Ševoroškin's papers (where the forms are listed in alphabetic order) with minimal comments". - Kassian cites about 210 interpretations of mine from each paper (this amounts to just one list of items, since both papers in question practically contain the same data). - But that is not all.

Quite unusual for a major dictionary is the selective way in which Tischler (who completed and published the *Glossar* after Neumann's death) presents many of my identifications of Lyc. and/or Mil. words in a number of GL entries.

Tischler lists some of my old, - obsolete, - interpretations and then provides Melchert's DLL identifications (these latter seem correct), - but, in doing so, Tischler

(a) omits Melchert's assertions about basing his data on my interpretations (my exx. 3-9, next; no GL listing of my data in ex. 7), - or, he

(b) omits Melchert's words in DLL about his identifications matching mine (exx. 1, 10), - or, for that matter, omits any relevant data from DLL (exx. 2, 11).

The 11 exx., which now follow, are arranged alphabetically. - In five cases (exx. 4, 6, 8, 9, 11), Melchert refers to my paper in *Gs. Korolëv*, 2002.

(1) GL: 53 [Mil.] "*:eim̃:* … Korolëv-Ševoroškin I (Mil. ėtym. [1966]) … 42ff. … 1. Sg. Präs. < **eimi* … 'ich feiere' … Melchert DLL^3 114: Nom.-Akk. Pl. n. *eim̃* …" Tischler doesn't mention here that Melchert, in this DLL entry, considers the form *eim̃* as a participle in **-mi-* and mentions the same grammatical interpretation from a paper of mine (where I'm also proposing a meaning for the participle *eim̃*): DLL: 114 "*eime/i-* (ptc.): nom.-acc. pl. nt. *eim̃* ... Similarly also Shevoroshkin, *Orbis* 17.489, who takes as participle of verb 'do, make'".

(2) GL: 94f. [Lyc.] "*:hlm̃mi:*... Ševoroškin briefl.: 'Denkmal' oder 'Darstellung'. Gusmani ... 'Tribut' ... Ihm folgt Melchert, LL p. 26." [no DLL data in GL]. But cf. DLL: 24 "*hlm̃me/i-* 'addition; gain, income' ... Cf. Gusmani ... Laroche ...; also Shevoroshkin, *GsKronasser* 211, and Hajnal, *LV* 182 with note.

(3) GL: 175f. [Lyc.] *kumaza* ... Melchert DLL^3 33: 'Priester' ... Ableitung von gemeinluwisch **kuma-* 'heilig'" [no citation from my work in GL]. In DLL: 33 Melchert says: "*kumaza-*^{1} 'priest' ... Forms based on **kuma-* already identified by Shevoroshkin ... (1969)." [DLL: 33 s.v. *kumalihe-*: **kuma-* 'sacralized'].

(4) GL: 263 [Mil.] *pdura-* ... 3. Sg. Präs. *pduradi* ... - Ševoroškin, briefl.: 'er belohnt, verteilt, gibt (ab)' ... - Eichner, Verb n. 139: Verb, 3. Sg. Präs.; ebenso Melchert DLL^3 124 ('bringen')." Tischler omits Melchert's words which refer to my 2002 paper (StL): DLL: 124 "*pdura-* (verb) 'bring' (?) ... See Gusmani ... and Eichner ... - Sense as suggested by Shevoroshkin, 2002: 128."

(5) GL: 268 [Lyc. and Mil.] "*pibi-* 'geben', ... - 2. Sg. Imp. (?) *pibi* 44c, 42. - So Gusmani, ArOr 36, 1968 ... Melchert DLL^3 124. - Anders Ševoroškin, briefl.: Wurzelnomen 'Gabe, Wohltat' o.ä. ..." But Melchert writes in DLL: 124 as follows: "*pibi(je)-* (verb) 'give' (= Lyc.): imv. 2nd sg. *pibi* c 42. See Shevoroshkin, 1968: 470 and *Orbis* 17.473ff, and Gusmani, *ArOr* 36.2, note."

(6) GL: 290 [Lyc. and Mil.] '*putu* ... Ševoroškin ... 'er soll zerstampfen' oder 'er soll einmeisseln' ... ähnlich Melchert DLL^3 125: zu lyk. *pu-* 'einmeisseln''. But Melchert actually writes in DLL: 125 this: "*pu-* (verb): imv. 3rd sg./pl. *putu* ... Likewise Shevoroshkin, 2002: 140, with the sense 'adjoin'. Or cf. Lyc. *pu-* 'inscribe'?" [But an interpretation 'inscribe' contradicts the context which deals with moving gods' statues to those of other gods, - for a ritual].

(7) GL: 338 [Lyc.] "*tarbi-* Verbalstamm (?) ... Viell. 'jemamdem etwas unterwerfen ...'; ähnlich auch Melchert DLL^3 60: 'overpower, conquer', entsprechend luw. *tarpi-*, h.-luw. *tarpai-* 'treten, stampfen'" [no V.Š. data in GL]. Melchert writes in DLL: 60: "*tarb(e)i-* 'overpower, conquer' ... Pret3Sg *tarbide* ... Definitely martial context ... Same identification already by Shevoroshkin (1969) ... with sense 'trample' or similar." [Semantically correct, - but *tarb-id-e* is rather the last - out of four - loc.-pl. components in TL 44a: *hãtah-e tlãñnel-e nel-e tarbid-e* 'in battles in the Tloan squares (*nel-e*), in commotions$^?$' (or: 'in frontal attacks$^?$')].

(8) GL: 370 [Mil.] "*trbbdi* ... Ševoroškin briefl.: 'er sanktioniert, bestimmt, vertraut an o. ä.'..." - Melchert DLL^3 131: 'übergeben, aushändigen'." Actually, Melchert writes in DLL: 131 the following: "*trbb-* (verb) 'hand over' (or similar?): pres. 3rd sg. *trbbdi* ... Sense as per Shevoroshkin, 2002: 142."

(9) GL: 392 [Mil.; Lyc.] "*tus-* ... 'legen'? ... In 44d,21 sheint ein Abl.-Instr. davon abzuhängen. Ablehnend aber Ševoroškin, JIES 7, 1979, 192 f. - Nach idem briefl. sei *tustti* vielmehr Prädikat ..., etwa: 'behebt (einen Schaden)' oder 'freut sich' ... Melchert DLL^3 74, 132: Iterativum zu *tu(we)-* 'legen' ... - Ševoroškin a.O.: zu heth. *dusk-*, später *duskiya-* 'sich freuen, fröhlich sein'..." But what we read in DLL 74 about Lycian is this: "*tuwe-* 'place (upright)' ... *Iterative* P3Pl *tusñti* ... (thus with Shevoroshkin, *JIES* 7.192, contra Laroche ...)." Cf. now about Milyan, DLL: 132: "*tus-* (verb) 'place': pres. 3rd sg. *tustti* d 21 (= iter. of **tuwe-* ...) - Thus also Shevoroshkin, *JIES*, 7.192, vs. others."

(10) GL: 394f. [Lyc. and Mil.]: "*:tuwi:* (auch lyk. B) Nomen ...; Meriggi ... 'Widmung, Opfergabe ...' - Ihm folgt Gusmani ... - Ševoroškin, MSS 36 ... 'Denkmal'. Idem briefl.: 'Unterschrift, Satz, Inschrift' ... - Melchert DLL^3 74, 133: 'votive offering, ritual offering'." Actually, in DLL: 133, Melchert writes: "*tuwe/i-* (noun) 'votive offering' (or sim.) ... - Similar interpretation by Shevoroshkin, *ZDMG Supp.* 1 (1969) 270, Meriggi ..., and Gusmani ..."

(11) GL: 438: "*zrbblã* ... Acc.Sg. (?) ... Ševoroškin, Vopr. Jaz. 1965/2, 115 ...: 'eingeritzte Inschrift'." [DLL - which refers to my 2002 paper - is not cited in GL]. Cf. DLL: 114: "*zrbbla-* (noun): acc. sg. *zrbblã* ... Per Shevoroshkin, 2002: 142 and 189, 'trophy' < 'booty'" [*zrbb-la-* to Hitt. *sāruw-ai-* 'to loot, plunder'; from IE.]

Bibliography

Güterbock H.G. and Hoffner H.A., eds. 1983—. *The Hittite Dictionary*. Chicago.

Dunkel G.E. 2014. *Lexikon der indogermanischen Partikeln und Pronominalstämme*. Heidelberg.

Hajnal I. 1995. *Der Lykische Vokalismus*. Graz.

Kassian A. 2000. *Two Middle Hittite Rituals*. Moscow.

Kim R. et al., eds. 2010. *Ex Anatolia Lux*. Ann Arbor / New York.

Kloekhorst A. 2008. *Etymological Dictionary of the Hittite Inherited Lexicon*. Leiden / Boston.

Kloekhorst A. 2014. *Accent in Hittite*. Wiesbaden.

Marksteiner Th. 2002. *Trysa - Eine Zentrallykische Niederlassung im Wandel der Zeit*. Wien.

Melchert H.C. 1993. *Cuneiform Luvian Lexicon*. Chapel Hill, N.C.

Melchert H.C. 1994. *Anatolian Historical Phonology*. Amsterdam / Atlanta.

Melchert H.C., ed. 2003. *The Luwians*. Leiden / Boston.

Melchert H.C. 2004. *A Dictionary of the Lycian Language*. Ann Arbor / New York.

Neumann G. 2007. *Glossar des Lykischen*. Überarbeitet und zum Druck gebracht bei Johann Tischler. Wiesbaden.

Orel V. 2003. *A Handbook of Germanic Etymology*. Leiden.

Payne A. 2014. *Hieroglyphic Luwian*. 3rd edition. Wiesbaden.

Pokorny J. 1959. *Indogermanisches etymologisches Wörterbuch*. I. Band. Bern / München.

Puhvel E. 1984—. *Hittite etymological dictionary*. Berlin / New York.

Rix H. 2001. *Lexikon der indogermanischen Verben*. Zweite Auflage. Wiesbaden.

Schürr D. 2005. Das Piχre-Poem in Antiphellos. *Kadmos* 44.

Shevoroshkin V. 2011. Misadventures of Zeus in the Lycian Kingdom. *Aramazd*, vol. VI, Yerevan.

Shevoroshkin V. 2011. On the Origin of Milyan Nouns. *Mother Tongue* XVI.

Shevoroshkin V. 2013. On the Origin of Milyan Verbs. *Mother Tongue* XVIII.

Shevoroshkin V. 2014. Milyan *trija*. *Aramazd*, vol. VIII, Yerevan.

Tischler J. 1983—. *Hethitisches etymologisches Glossar*. Innsbruck.

Tischler J. 2008. *Hethitisches Handwörterbuch*. 2. Auflage. Innsbruck.

Watkins C. 2011. *The American Heritage Dictionary of the Indo-European Roots*. Third edition. Boston - New York.

Wodtko D.S. et al. 2008. *Nomina im Indogermanischen Lexikon*. Heidelberg.

Yakubovich I. 2010. *Sociolinguistics of the Luvian Language*. Leiden - Boston.

Yazyki mira / Languages of the world. 2013. Ed. A. Kibrik. Moscow.

Zehnder Th. 2010. *Die hethitischen Frauennamen*. Wiesbaden.

Abbreviations

Accent	Kloekhorst A. 2014.
AHL	Melchert H.C. 1994.
CHD	Güterbock H.G. and Hoffner H.A., eds., 1983-.
CLL	Melchert H.C. 1993.
DIOR^3	Watkins C. 2011.
DLL	Melchert H.C. 2004.
EDH	Kloekhorst A. 2008.
GL	Neumann G.; ed. Tischler J. 2007.
HED	Puhvel J. 1984-.
HEG	Tischler J. 1983-.
HH^3	Tischler J. 2008.
HL^3	Payne A. 2014.
IEW	Pokorny J. 1959.
LIV^2	Rix H. 2011.
NIL	Wodtko D.S. et al., 2008.
Ptk.1-2	Dunkel G.E. 2014

MOTHER TONGUE
Journal of the Association for the Study of Language in Prehistory • **Issue XX • 2015**
In Memory of Harold Crane Fleming (1926-2015)

The Central Asian substrate in Old Iranian

E.J. Michael Witzel
Harvard University

§ 0. INTRODUCTION

The question of substrates in Old Iranian has hardly been broached, — and if so, in negative fashion.[1] For some years, therefore, I thought it would be useful to take a closer look at Avestan and O.Persian texts and see what we may find by way of possible, or even of probable non-IIr. and non-IE words.[2] Naturally, not all words given below will turn out be substrate words; any initial listing like the present one will be fraught with overcounting[3] in favor of non-IE origins, and also with unintended errors.

Several highly developed archaeological cultures (towns and cities) existed in the general South Central Asian[4] (SCA) and Greater Iranian areas[5] that may have contributed to the Iranian substrate vocabulary. The latter generally reflects an agricultural/pastoral society, but not one of towns and walled cities, as seen in the Bactria-Margiana Archaeological Complex (BMAC, or Oxus Civilization).[6] Other archeological areas of interest are Šahr-i-sokhta[7] on the Afghan/Iranian border in Seistan, Shahdad in Central Iran,[8] Mundigak[9] in S.E. Afghanistan, and the highly developed southern Iranian belt from Elam–Anšan via Tepe Yahya all the way to the recently discovered Jiroft[10] culture in the Bampur area, which is fairly close to the Indus Civilization.[11]

---

[1] For a full length treatment see *Commemoration Volume M. Mayrhofer* (ed. by Velizar Sadovski; forthcoming: Vienna). — The late F.B.J. Kuiper somewhere denies the existence of a substrate in Old Iranian, though he saw a lot of this in Vedic and Sanskrit. Note also G. Windfuhr, in *Encyclopedia Iranica*, referring to Lubotsky's and my work: "These studies disprove the earlier assumption, at least for Avestan, of a pure, or purified, Indo-European lexicon": http://www.iranicaonline.org/articles/iran-vii1-non-iranian-languages-overview- . Cf. however Sims-Williams 1998.

[2] Witzel 2003: 39 n.158. While at at Tokyo in 2004/5, I went through Bartholomae's dictionary and marked all items that seem to belong to an non-Indo-European substrate.

[3] I remind of the intense discussion that followed F.B.J. Kuiper's lists of non-IA substrate words in the RV (1955, 2011, see: http://www.aa.tufs.ac.jp/sarva/materials_frame.html).

[4] Former Soviet Central Asia (S. Turkmenistan, S. Uzbekistan, S. Tajikistan), and northern Afghanistan.

[5] See Witzel, Iranian Migration, 2013: 422-441.

[6] Sarianidi 1977, 1980, 1991,1993; Litvinsky, B. A., and L. T. P'yankova 1992; Salvatori 2000, 2008; Hiebert 2004; Possehl 2007; Francfort 2009.

[7] Tosi 1968, Costantini and Tosi 1978; Salvatori and Tosi 2001. Hauptmann et al. 2003; Salvatori 2008, Salvatori et al. 2008.

[8] Hakemi 1997.

[9] Casal 1961, Vogelsang 1987.

[10] See *Dossiers d'Archeologie* 2003; Majidzadeh 2003, Lawler 2003, Steinkeller 2006, Majidzadeh and Pittman 2008, Madjidzadeh 2011.

[11] Cf. Witzel 2003.

Preliminary notes:

SCA signifies the substrate language(s) of South Central Asia, which by and large overlaps with the Bactria-Margiana (BMAC) area. The lists given below follow the word order of Bartholomae's *Altiranisches Wörterbuch* (BTHL).

In the sequel, I mostly leave out the asterisk * sign for reconstructed substrate forms; thus other than thus marked IE, IIr. etc. forms. Double asterisk points to reconstructions of a more distant in time, such as loans into the SCA substrate from neighboring cultures. Brackets [...] indicate clear *non*-SCA origin (i.e., IE, IIr., Iran. words). SCA words are mostly given here without translation, to save space; for a more detailed discussion see the appended word list (§ 7). PIE, IIr, IA and Iran. noun stems are indicated by hyphen only where necessary for the argument.

Generally speaking, what is given here as SCA substrate may belong to the (Proto)IIr., pre-Iranian, or in some cases even of the Old Iranian periods.

In many cases, this is clear enough, for example, SCA *ć* > *ś* > O.Iran. *s*, or *kh* > *x*, but in other cases we do not know at what stage a word has been taken over into pre-Iran. or Old Iranian, thus at the **ć* or **ś* stage, or whether it came *directly* from a substrate form with *s* —thus well after the IIr. stage— so that the (late) Old Iran. change *s* > *h* did no longer affect the word, and thus *s* was retained in SCA substrate words. In cases where we have to reconstruct aspirated media, based on Vedic forms, aspiration is indicated by raised *h* (*g*^{h}, etc.) as it has been lost in Iranian.

SCA personal and geographical names excluded here from analysis, due to the inherent difficulties of etymologizing them;[12] (see the appended list, § 8).

§ 1. SOUNDS

The Proto-Iranian substrate shares with the Indo-Iranian substrate (A. Lubotsky 2001, Witzel 1999, 2003) a certain predilection for aspirated occlusives and for palatal consonants.

§ 1.1. Aspirates

Lubotsky (2001: 303) has listed 6 cases where *kh, ph, th* that are not due to IE laryngeal impact: **sphara, atharvan, kapha, khā, khara, mayūkha**; these can now be expanded with some 30 additional words (for meanings and discussion see the appended list, §7): **avathe, *kaith, *kaupha,* etc.

§ 1.2. Palatals

Lubotsky listed some 13 cases involving *ć, j́, č, ǰ, š, ž* (Lubotsky 2001: 304):**anću, āćā/aćas, ćarva, daćā; dṛća/dṝća, j́harmiya, kaćyapa, kaića/gaića, kućši, malj́ha, naij́(s), ućij́, varāj́ha.** This list can now be expanded to some 130 cases found in the current materials*: ayaj́āna, uštra, kašyapa, kućši, kšīra, kćvaipā, ǰaj*^{h}*uka, pićta, makši, mušta-maša, vṛćša, spaj́ga, ćrask,* etc. The reason for the surprising multiplication of cases is that Avestan was spoken in the Greater Bactria/Sistan area. Its speakers entered the area a few centuries later than those of pre-IA/Vedic,[13] and remained in the same area while the Proto-IAs moved on to India.

---

[12] For these see Mayrhofer, *Iran. Namenbuch* 1979, and R. Schmitt 1995.

§ 1.3 Clusters with š

There also are frequent clusters with *š*. Lubotsky (2001: 304) has seven cases: **kućši, vṛćša, matsya, naij(š), kšīra; pusća, sćāga/sćaga**. This list, too, can be enlarged now by some 30 cases of C + š: **āxš-ta,* etc., š + C: **iškata, *uštra,* etc.

Further, there are some 'unusual' consonant groups: **kaćvīš, kućra, kućši, kćnu / ksnu; kćvaipā / ksvaipā ; kćvīd / ksvīd; barća / barš, vṛćša, (v)ruvāćnā, pićta, spaj́ga, ćyaj́g / syaj́g.* *

§1.4 Consonant variations exist between media/tenuis, (non)aspirated occlusive. They cut across the O.Iranian/OIA divide, which may be due to two or more distinct dialects of the S. Central Asian substrate.[14] They include: *kh :: gh :: k :: g ; *th/dh; *dh: t; *t : th?; *d: t?; *bh:: ph :: (uu); *p: b; *kćv : ś; * ć : s ; *th/š ; *s/š. [15]

- There is some inner-Iranian fluctuation:
  k : g, p : b
  k : kh, t : th
  th : ś
- Some patterns of fluctuation also exist between Iranian and Vedic:
  k : g^h, t : d^h, p : b^h; note *ph : b^h
  d^h : t, g : k

Such cases seem to point to an *early* SCA substrate with aspirated media that were retained in Vedic; however, pre-Iranian aspirated media developed into O.Iran. tenuis; and SCA/pre-Vedic tenuis developed into Iranian media. The evidence may point to a degree of uncertainty in adopting SCA substrate words into pre-Vedic and pre-Iranian (see above): for example, if the substrate language had a lenis/fortis distinction instead of a media/tenuis distinction. — For SCA vowels, see § 4, and below, note 35. There are the following short and long vowels and diphtongs: *a ā, i ī, u ū, ṛ ṝ, ai āi, au āu*; but there is a complete lack of *e, o*: apparently all hypothetical SCA vowels such as *e, ε, æ, ɔ,* etc. merged with the phoneme *a* when the substrate words were taken over into pre-Iran. and pre-Vedic.

§ 2. SUFFIXES

A. Lubotsky (2001: 303 sq.),[16] based on some Vedic-O.Iran. comparisons, has drawn attention to certain peculiar types of word formation in the Indo-Iranian (= SCA) substrate, such as the unusual suffixes directly attached to 'roots'. They include: *–ka* (normally not denominational in IIr.): *at-ka, stu-ka,* etc.*;* *-sa* (rare in the inherited IIr. lexicon): *pīyū-ša,* etc.; *-pa* in: *kaćya-pa* etc., and some unusual formations: *stūpa/stupa, nagna(-j́*^{h}*u)* 'bread'/Ved. *nagnahu* 'yeast'; *karuš* 'damaged teeth', *pavastā/a* 'cloth', etc.

---

[13] See Burrow 1973 and Hintze 1998.

[14] See already Lubotsky 2001.

[15] For a detailed discussion of this and other features see my forthcoming paper in the *Commemoration Volume M. Mayrhofer*, ed. by V. Sadovski (see note 1).

[16] Lubotsky 2001: 303/4 on the *-ka, -sa, -pa, -aj, -uš* suffixes.

This list can now be considerably extended. However, when analyzing the word structure of an unknown language[17] what is to be regarded as a suffix? For example, is *-k-* a suffix or is it just *-k* that was secondarily extended with the dominant O. Iranian/Vedic -*a* stem. Thus, in the absence of grammatical information on SCA, where to segment: *stuka-* or *stuk-a*?

There are some *certain* suffix variations in the SCA substrate, which helps to analyse the syllable structure. Next to the dominant IIr. stem suffixes *–a, -ā, -i, -u* to substrate words there are some 20 SCA *–u* stems (some 7.6 % of 380 words): **ašu, ǰažu / ǰaju*. etc. There also are some 20 cases of *–i* stems, (some 7.6 % of 380): **āxšti; ćaci,*[18] etc.

§ 2. SECURE SUFFIXES

Undeniably clear cases include *namat-ka :: namat-a.*[19] This indicates an underlying substrate word *namat*. Further: *āxš-t-a :: āxš-t-i*, with a suffix -t-. If so, we also have to segment *gas-t-a; pić-t-a / piš-ta* (and maybe also *vāithimi-t-ka*). That SCA words indeed ended in consonant is hinted at by *tū-tu-k* 'loam' (see below § 3), *kurit* 'collar,' *trans* 'mouth,' etc. There also is the 'strange' suffix *-p*^{h}*t* (or rather *p*^{h}*-t*) that interchanges with *–t*:[20] *iška-ta :: iška-pt > iškaft*. — The suffix *–in(a)* is seen in: *paina :: painā :: paina-ina* and *ćafna > safna* 'iron' :: *ćafna-ina; ćafna-ina-ćaipa.*

A suffix *–m(a)* may be discerned in Avest. *gantu-ma* 'wheat', which is, however, a western loanword that had arrived from the Greater Near East along with the introduction of wheat cultivation.[21] The suffix is found both in O.Iranian and in OIA (OIr. *gantuma* / OIA *godhūma,* EWAia II 499). The Near Eastern loan word (***gənd/gər,*[22] see § 3), has somewhere along the way (in Proto-Kartvelian?) aquired a suffix *–u* (P.Kartv. **ghomu*) / **gantu*, to which an additional (SCA) substrate suffix *–ma* was added.

A suffix *–man* occurs in: *aps-man :: aps-a,* and a suffix *-aj* is seen in *b(*^{h}*)aiš-aj-a :: bhiš* 'to heal.' A suffix *–ur/ar* followed by the common substrate suffix *–na* (see below) occurs in *sāk-urna; sik-arna; ćuk-urna*. A suffix *-rva* or *–arva* is apparent in Ved./Avest. *Gandha-rva/Ganda-rəβa, Atha-rva/Aϑau-ruuan, Aϑ-rauuan, Śa-rva/Sau-ruua* (Lubotsky 2001). The suffix *–s* appears in *āćā/aćas* > Avest. *asah* 'region, space' :: Ved. *āśā-* (f.).

In sum, there are substrate words ending in consonant(s), and others with the following clear suffixes: *-k, -t, -p(*^{h}*)t, -aj, -ina* (or *–in*), *-ur/ar–na* (or *-urn/arn*), *-ma* (or *–m*), *-man, -(a)rva, -s*.

A provisional list of primary and secondary SCA suffixes would therefore include,: *aš, -iš/īš, -uš; -aj, -ij, -ac, -ać, -ća; –ag, -āk, -at, -ta, -an; -ant; -ar, -ir, -ur; -at, -ad, -it; -*

---

[17] Cf. Kuiper 1955, and especially 1991, introduction, on the substrate in Vedic.

[18] For the Central Asian loanword: *išt-i* 'brick' :: Bur. *d-iścik*, Toch. *iścem,* etc., see below.

[19] For the obvious *–k(a)* suffix see *at-ka*, etc., above.

[20] Note that the affix *–t-* , as seen in many formations with *–ta*, such as *āxš-ta*, *iška-ta, gas-ta, pavas-ta* etc. is also found as a prefix, clearly seen (see below § 3) in : *inja/ t-inja,* similar to the *tila: jar-tila* case in India.

[21] Though with a popular etymology in Ved.; cf. Fuller 2009.

[22] For the *n/r* vaccilation see Witzel 2003: § 3.6 s.v. *pard/pandh pard* leopard, *šer < serǵh-/sengha*, pre-OIA **sinǵha,* Ved. *siṃha;* detailed discussion in 2003: §5.

as, -ast; -kra; -kha; -ga; -t, -tva, -tya; -tha; -na, -nu, -nga; -pga, -phya, -phra; -bi; -ma, -man, mant ; -ya, -ra, -van, vant; -vas, -s, -stya.

Two or more consecutive suffixes may be involved in: **duthu-bi; pabrā-na, praša-na, vag-tha-na, marjiš-ta;*[23] *vāithi-mit-ka,* etc.

§ 3. PREFIXES, REDUPLICATION

There are a few clear prefixes:[24] *inja* 'here' :: *t-inja* 'back, etc.'[25] Some *ka-* prefixes may be included here – though in the inherited IIr. words they usually reflect the "pejorative" IIr. *ka-/ku-/kat-*.

The few interesting cases of reduplication may tell about the syllable structure of the substrate: *tū-tu-k* 'clay, mud, loam;' *ra-rā-j* 'to go;' *vī-ci-ca* 'chalk' — Cf. also *mušta-maša* 'myrrh.'[26] Thus:

CvCv - (CvCv); CvCvC; CvCCv

§ 4. SYLLABLE STRUCTURE

There are a few clear cases of loans *into* SCA. The word for 'wheat' has very ancient Near Eastern (***gənd/gər*) and subsequent Proto-Kartvelian origins: **ghom-u* > O.Iran *gantu-ma*, Ved. *godhū-ma*, thus a structure CvCv//CvCCv + *ma* suffix.[27]

The word for 'brick' clearly has a Central Asian substrate origin as it occurs all the way from Tocharian to Avestan/Old Persian, Burushaski and the IA Kalasha in the high Pamirs, as well as to Vedic. SCA *išt/išti/ištu* > Ved. *iṣṭi* , *iṣṭakā* 'brick', Avest. *ištiia-* 'brick', *zəmō.ištuua-* 'clay brick'; OP *išti-*; note Toch. B *iścem/iṣcem* 'clay' Toch A: **iśce: iśäc*[28] > Uighur *iśic* 'earthen cooking vessel', Burushaski *d-iṣcí-k,* Kalasha *kh-iṣṭi-pokhta* 'brick,' the latter two with unexplained prefixes.[29]

The word for 'donkey': unlike the horse, the donkey and the half-ass (*hemion*) are animals of the arid steppes and deserts of the Near East (and far beyond).[30] The word may be a loan into Indo-Iranian languages from early Semitic (or from an unknown third source): ***khar* > Avest. *xara,* Vedic *khara*, EWAia I 447: IIr. **khara-*; extra-IIr. links are uncertain, but cf. Akkad. *ḫârum, ajarum* 'male donkey'. Also to be compared is Pashto *xəṛ* 'muddy, dirty brown' (Morgenstierne 1927: 97, NEVP 96), next to Pashto *xar*

---

[23] The *-iš, -uš* suffixes (as in *kar-uš*) point to non-Para-Munda origin as they appear both in in pre-Iranian and in Vedic, differently from Kuiper 1991, Witzel 2003; note the ritual vocabulary concerned with Soma and its priest (Kuiper 1955).

[24] They are to be distinguished from the "Para-Munda" prefixes detailed in Witzel 1999/2003: *ka-, ki-, ku-, kər-,* etc., though, there are a few that look similar. However *ku-/ka-*'evil' as in *ku-yava, ka-mairiia* are IIr. denigrating prefixes.

[25] Cf. NP *injō* ینجا — which reminds of Ved. prefix cases such as *tila* 'sesame' / *jar-tila* 'wild sesame'.

[26] This may be a loanword, note that Vedic has *guggulu/gulgulu* 'bdellium'; in AV 19.38.2 it is characterized as *saindhava* and *samudriya*, thus as from Sindh or from across the ocean (South Arabia/Yemen).

[27] Witzel 2003.

[28] See Pinault 2003 on reflexes of this word in Tocharian.

[29] The 'prefix' *v-* in Marathi *vīṭ* brick is an automatic phonetic outcome; cf. Witzel 2003: § 3.2.

[30] See the summary by Becker 1994.

'donkey'. Ved. *khara* would be an early loan from Iran. as to signify a new breed, different from Ved. *garda-bha*. However, it seems easier to posit an IIr. loan **khara-*, next to another one, IIr.(?) **gar-d-a.*[31] The word used in NIA for the half-ass/hemion, surviving in W. Gujarat (Girnar), is *khor*.

Their shared geographical area must also have been close to that of the words for the 'lion' and 'leopard'. The clearly Central Asian substrate word for 'lion' has the same interchange of *r/n* already seen in **gənd/gər* 'wheat'. The word for 'lion' is ***šerǵ*^{h}*/seng*$^{(h)}$: pre-OIA **singha* > **sinjha* > Ved. *siṃha*; however, pre-Iran. **šerǵ*^{h}, Proto-Iran. *s*arg* that has resulted in Khot. *sarau,* Khoresm. *saryγ,* Sogd. *šrγw/šrw,* Parth. *šarg/šgr,* Pahlavi *šgr, šyr,* N.Persian *šēr.*[32]

The same *r/n* variation is seen in the word for 'leopard': ***pərdh/pandh* 'spotted animal, leopard/panther, seen in O.Iran **pard* etc. Further, note the loan from a Near Eastern substrate language into Greek *párdalis, párdos, léo-pardos* (Witzel 2003 § 2.1.3) These old, non-BMAC loanwords have the following syllable structure:

CvC	***gər, šer, seng*
CvCv	*ghomu; — khara*
CvCC	***gənd; pərdh, pandh*
CvCCv+ma	*gantu-ma*
vCC -(v)	*išt-(i)*, (**iśce-m*, **iśä-c*)
(C)vCCv	*d-iṣcik, kh-iṣṭi-*

They were received in O.Iran. with a syllable structure closed by single or double consonant (followed by other suffixes), as well as with a simple structure of open syllables, with interchanging C and V. These results are sustained by a survey of the syllable structure in other available words, given below.

Syllable structure of SCA words. The structure of roots allowed in Indo-European has been well established.[33] Not allowed are: *media-e-media* (with intervening PIE e)*; aspirated media-e-tenuis; media-e-aspirated tenuis; tenuis-e-aspirated media, tenuis-e-resonants-tenuis*; thus: **geb,* **geph,* **kebh,* **teu̯rk.* Such words would automatically qualify as derived from a substrate. However, as IIr. aspirated media has developed to media in O.Iran., it is difficult to trace some such patterns in the SCA substrate. 1. The type **geb* is attested a few times: *gada* > Avest. *gaδa* 'robber, bandit,' etc.; 2. The type **bhet* would appear as Iran. **bat*; 3. The type **geph* is rare; 4. There are hardly any cases for the type **kebh* > Iran. **kab.*

There are many words with open syllables, such as: **duthubi, praśana; magava, pakruma; madaka; mṛjāna, pabrāna** etc. **-maša; vī-ci-ca** etc. However, a wide variety of possible syllable types are attested. Words beginning with vowel (length neglected here) include the following structures: vCv, vRv, vC-a; vCvC-a, vCvRR; vCCv, vCR-a, vRR-a; vCvC, vRvRv, vRvR-a; vCCC-a, vCCR-a; vCvCv, vCvC-a, and some other variations

---

[31] F. Southworth, 2005: 80, notes the close resemblance between OIA *garda-bha* and Central Dravidian forms like Naiki *gārḍi;* he also sees one of the few possible links of Dravidian with the SCA substrate: the word may be related to PDrav. **kaẓ-ut-ai*, Central Drav. (Kolami) *gāḍdi.*

[32] Contrast Tib. *seṅge*; O.Chin. *^{a}*so[n/r]-aŋe* (Behr), **suân-ŋei* (Karlgren), Mod. Chin. *shi-zi,* Jpn. *shi-shi*; further Toch. A *śiśäk,* B *śecake* "lion" < *ṣecáke* < **ṣec-äke,* with the common, borrowed IIr. suffix *-a-ka* (Pinault 2003), see Witzel 2003 § 2.1.3.

[33] Szemerényi 1970: 72 sqq., Mayrhofer 1986: 95, n. 19; cf. Beekes 1995: 162.

involving resonants (here indicated by R). Words starting with consonant include these patterns: CvCv, CvCCv, CvCvCv; CvRvC, CvRCv, CvCRv, CvCRvC; CvCvCC-a, CaCRvRC-a. The decision which syllable structure applies in a certain word depends on parsing, on suffix segmentation.

Much of the above, again, does not look IE or IIr.; there simply are too many words with open syllables (CvCv). Apart from this, the syllable structure CaC is most common, as well as CvC involving other vowels[34] and the diphtongs _ai, au_, however not _–e-_ and _–o-_. This opens the interesting question whether the SCA substrate words still went through an IIr. 'filter': PIE *_e > a_, *_o > a,_ some of which occurred at a rather late date: note the palatalizing effect of *_e_ in reduplication (_cakāra_), and Brugmann's _o > ā_.[35]

Second, if the presumable suffixes are separated, the syllable structures CaC-Ra-Ra, CaC-aR-Ra, too, emerge.[36] Third, occasionally 2 or 3 suffixes are seen: *_vag-tha-na; v-aj-ag-na; ćup-ti-thar-nga,_* etc. However, due to parsing uncertainty, referred to above, a large number of possible word shapes exist that cannot be detailed here (see examples in § 7).

Long middle syllable? Lubotsky (2001) has observed a number of three-syllable words with long middle vowel. From the present materials we can now add a few words with _both_ long (also metrical) and short middle vowels: *_pabrā̲na : praśana; mṛjā̲na; varā̲j́^{h}a_* > Avest. _varāza,_ Ved. _varāha;_[37] *_magava, madaka, duthubi; j́arma-ya; pakruma; sadanaipatā; vāidi-mid-ka._*

Multi-syllable words. Next to the large number of two syllable words, such as *_aka, aku, adu, akti, atka, anću_* etc., 3 or more syllables also occur: *_sadanaipatā_ > Avest. _haδānaēpatā, -pātā_ 'a plant used as incense, and for sacred fire.' Further: *_duthubi, vāidimidka, (v)ruvākra, (v)ruvāćnā, ćārastya_* etc.

---

[34] Cf. the same structure of some non-BMAC loans in SCA substrate words, § 3.

[35] We do not know, obviously, whether the hypothetical SCA sounds *_ə,_ *_e,_ *_ɛ,_ *_æ_, etc. were heard and realized by early OIran. speakers as the pre-OIran. phoneme _a_, and likewise *_ɔ,_ *_o,_ *_å_ etc. as _a_. If we had substantial vowel vaccilation, as with the local (Para-)Munda vowels in the Vedic substrate (Kuiper 1991), we might get a clue as to the numbers of SCA vowel phonemes and their allophones. At this stage, we can only list the reconstructed sounds _a ā, i ī, u ū, ṛ ṝ, ai āi, au āu_. – For the date of pre-OIr. entry see also below § 6.

[36] R indicates the resonants m, n, y, r, l, v.

[37] The word for 'boar' *_varājha_ is an old loan from Uralic, see EWAia II 514 sq, Lubotsky 2001: 303 sq; note the impressive depictions in BMAC art.

§ 5. SEMANTIC CATEGORIES

The semantic fields of the SCA words, even if they sometimes overlap, result[38] in the following initial summary.

1. nature	c. 27 SCA words
2. body	c. 44
3. clothing	c. 9
4. home, food, domestic occupations	c. 29
5. society	c. 45
6. (domestic) animals	c. 43
7. agriculture, domesticated plants	c. 27
8. (martial) implements, war	c. 20
9. evils, illnesses, obnoxious animals	c. 36
10. abstract terms	c. 27
11. religion	c. 29

§ 6. CONCLUSIONS

Religion apart – we have to disregard the Zoroastrian as well as the Islamic overlay – both the Avesta as well as the O.P. data point to the old substrate language(s) of Greater Eastern Iran, – just as the Vedic substrate points to the substrates of, subsequently, the SCA area, the Hindukush, the Panjab, the Upper and finally, the Middle Gangetic areas (Witzel, MT 1999, 2004).

Further, swe need to distinguish clearly between, on the one hand, the individual data represented by the Ṛgveda[39] and the Old Iranian texts, and on the other, the data where *both* old IIr. texts agree, – in other words, the substrate that influenced the various IIr. dialects when its speakers were entering and passing through southern Central Asia (roughly, the BMAC area).

In this paper, the focus is on the individual Old Iranian substrate. This means, in relative historical terms, the period *after* common IIr. (c. 2000 BCE), after the immigration of the pre-IA speakers into the BMAC and western Iran (Mitanni IA, c.1500 BCE), after the IA immigration into the Hindukush and finally into the Greater Panjab (c.1400-1000 BCE). With Burrow, we deal here with the subsequent period when the speakers of pre- or O.Iranian, following on the heels of the Indo-Aryans, entered southern Central Asia, Bactria, Sistan (c. 1000 BCE), and beyond.

The ultimate background for many of the substrate words listed here is the infiltration and expansion of O.Iranian speakers, through the BMAC area, into Afghanistan and beyond. As such, the appended list (§ 7) differs considerably from the earlier ones of Lubotsky/Witzel (1999-2003) and Kuiper (1991, for the *common* O.Ir. -Vedic substrate).[40]

---

[38] As mentioned, the distribution of words in these categories is sometimes somewhat idiosyncratic; some words have been counted twice. The numbers thus only provide a general impression. For details see the discussion in Comm. Vol. Mayrhofer.

[39] We still have to compare Kuiper's 1955/1991 lists with what is now available for the SCA substrate (Lubotsky 2001, Witzel 1999/2003): how many of the SCA/BMAC words have actually made it into Vedic? One expects to have more of them in pre-Ir. (Afghanistan), as would indeed be seen in a preliminary list of substrate words in Pashto.

[40] In the Ṛgvedic substrate we probably will have to eliminate some of the *ka-* cases. These overlap, in many instances with the much more frequent "Para-Munda" prefixes: *ka, ku, ki, kər,* etc. (Witzel 1999).

There are a number of new developments that are present mainly in the O. Iranian substrate:

- sounds: frequent palatal consonants, interchange of certain consonants (media/tenuis ~ fortis/lenis?, nonaspirated/nonaspirated occlusive), no *e*/*o*-vowels;
- certain if rare prefixes:
- some reduplication;
- a peculiar syllable (CvCv, CvC) and suffix structure, with some long, 3 or 4 syllable words;
- new and different semantic categories (when compared to the Vedic substrate), pointing to an agrarian village society.

The number of suspected SCA substrate words (c. 380) is very high when compared to Kuiper's list of Indian substrate words in the RV (383) as the extent of the Avestan and O.P. texts is so very much smaller than the RV. This is exactly the opposite of what is expected.

There was much stronger influence on Avestan by the non–IIr. substrate of the southern Central Asian and Greater East Iranian areas than that seen in the Ṛgveda by the Indian substrate of the Greater Panjab.[41] This result requires that, in future, we must take a much closer look at the wealth of materials found in Middle and New Iranian languages.

---

[41] Even if the appended SCA word list (§ 7) would be pared down, as some have tried with Kuiper's RV list. In the latter case some 200 out of 386 words have survived a serious paring down — which still amounts to some 2% of Ṛgvedic vocabulary. This figure would be much higher in percentage for the SCA words in the small Avestan corpus.

§ 7. A provisional list of SCA substrate words in Old Iranian[42]

1. *au-tra > Avest. aoϑra 'shoe' BTHL 42.
2. *aun-ya > aoniia 'a type of fireplace or heating apparatus' BTHL 42; EWAia I 131: Sims-W. ~ "river bed."
3. *aka > aka 'evil, bad' BTHL 44, Ved. agha: Avest. aγa. EWAia I 39: no extra-IIr. words.
4. *aka-na > akana 'receptacle of arrows, quiver' BTHL 46.
5. *aku > aku 'scissors' BTHL 46.
6. *agur-ya > aγūiriia 'name of parasites of humans' BTHL 49.
7. *ak-ti > axti 'pain, illness' BTHL 51, EWAiaI 39: see aka-.
8. *adu > aδu 'water course, rivulet, channel' BTHL 57.
9. *at-ka > aδka/ at̯ka 'upper garment, cloak' BTHL 61 = Ved. atka. Lub. 304; EWAia I 58; II 530: unclear.
10. *athā > aϑā 'ground, farmstead' BTHL 66; not: EWAia I 59.
11. *atrant > aϑrant '?' (of cereal crops) BTHL 67.
12. *anću *"Soma plant'* > *ąsu* Lub. 304; BHTL 361; Ved. aṃśú, MW 2004: Toch. *ankwaṣ*, Chin. *yangkui;* but EWAia I 37: 'no extra-IIr. connections'.
13. *aps-man > afsman 'verse line in the Gāϑās' BTHL 103: EWAia II 402: 'Dichtwerk'.
14. *ap-sa > afša 'damage, loss' BTHL 103, EWAia I 90: ~ Ved. ápsas 'injury'?
15. *aps-man > afšman 'damage, disadvantage' BTHL 104.
16. *as-ra > aŋra, O.Av. angra 'hostile, enemy' BTHL 104.
17. *aću > asū 'sword' BTHL 109; cf. Ved. asi; EWAia I 145: unclear whether ~ Palaic hašira 'dagger'.
18. *anai-tya > anaiϑiiā 'ban' BTHL 115.
19. *anāir-ti > anāiriti 'name of an insect pest on dogs' BTHL 124.
20. *ayajā-na > aiiažāna (name of an agricultural tool used when plowing) BTHL 159.
21. *ayas-yā > aiiehiiā (name of class of female demonic [Daiva] beings) BTHL 161, EWAia I 104: ~ Ved. ayāsya (epithet of Indra)??

[22. *avai- : auuaē-tāt 'pain' (exclamation: auuōi, auuē) BTHL 168, cf. āuuōiia 334 (onomatopoet.).

[23. *avathe? > auuaϑe '?' in list of swear words (*iϑa yaϑna ahmai auuaϑe, iϑa yaϑna ahmai āuuōiia, iϑa yaϑna ahmai*) BTHL 172; Persianisms?

24. *ara > ara 'a kind of illness' BTHL 185 EWAia III 15: alarka 'mad dog' (Epic)?
25. *aria-ka > araēka '?' name of a kind of ant BTHL 186, EWAia I 128: no conn.~ Ved. alī-ka evil, etc. (of snakes).
26. *arau-na > arauna 'wild' BTHL 190; EWAia I: 107: araṇa 'foreign, far' not ~ Avest. arauna.
27. [ascu 'shanks' BTHL 211, 1852]
28. *astar-ya > astairiia (name of an illness) BTHL 214.
29. *ašāu-va > ašāuua (name of a class of enemies of the Ahurian creation) BTHL 256.
30. *ašir-ya > aširiia (name of parasites of humans) BTHL 260.
31. *aja-na > ažana (name of an illness) BTHL 265.
32. *āćā/aća-s > asah 'region, space' Lub. 303-4: Ved. āśā-, EWAia I 178: only Pashto *ōsēdəl*, not found in NEWP.

[33. *ase > ahe 'indeed, true', particle BTHL 280.

---

[42] The current list follows the order of Bartholomae's entries; it gives the reconstructed SCA form first (i.e. **au-tra*), with provisional suffix parsing, followed by the Avestan word (as default, not indicated), and eventually, an Old Persian form, as well as EWAia and other notes.

34. *ākā > ākā 'manifest' BTHL 309.
35. *āxš-ta > āxšta 'pacified, peace' BTHL 311, see next.
36. *āxš-ti > āxšti 'peace' BTHL 311.
[37. *ādra > ādra 'low social position, subordinated', cf. Ved. ādhra; BTHL 322, EWAia I 165. ~ nadh?, II 34 'in Not sein'.
[38. *āvāya? > āuuōiia exclamation: 'woe' BTHL 334, cf. auuaē 168.
39. *ṛg-ant > ərəγ-ant 'terrible, despicable' BTHL 349, EWAia I 249: semantic problem: ~ Ved. ṛghāy° 'toben', 262: not ~ Ved. ṛhant.
[40. *ithe? > iϑe (in swear words, see: iϑe iϑa yaϑna) BTHL 366.
41. *inja > inja 'back' cf. t-inja BTHL 367.
42. *išud > išud 'demand for return of loan' BTHL 375; EWAia I 200 ~ IIr. iš 'Kraft erstreben', Ved. iṣudhy° etc.
43. *iška-ta > iškata 'rock', place name? BTHL 376; cf. Bd. 12.2.21; cf. foll.
43a. *iška-pt > iškaft 'rich in caves'.
44. *išti-ya > ištiia 'brick', BTHL 378 cf. zəmō.ištuua; OP išti- Note: Toch. B *iścem/iṣcem* 'clay' Toch A: *iśce: iśäc, Bur. *d-iṣc-ik,* Kalash *kh-iṣṭi-pokhta* 'brick', Witzel 2003.
45. *ūnā > ūnā 'hole, cleft' BTHL 402; cf. Ved. ūna-.
46. *ućad > usad ' a plague of Bactria' BTHL 405.
47. *(uz?/uj)-yadā-na > uz-iiazdāna 'a part of the nose' BTHL 413.
48. *ušada > ušadā 'part of the back' BTHL 415.
49. *uštra > uštra ' camel' = Ved. uṣṭra BTHL 420, EWAia I 237: unclear; < *(H)us-tro-/Huḱtro-?
50. *kai-ta > kaēta 'name of some inimical beings' BTHL 428; EWAia I 358, Bailey ~ Ved. kīstá etc.
51. *kaith > kaēϑ 'to teach' cf. kaēš BTHL 428.
52. *kaića > gaisa > (-)gaēsa, gaēsu '(curley) hair' BTHL 479; 1408; ~ Ved. keśa -*g*- according to gaona? EWAia I 401: no clear etym.; Lub. 302, 304; cf. LIV *ḱes 'abschneiden'?
53. *kaiš > kaēš 'to teach' , see kaēϑ BTHL 429; ~ Ved. kīstá??
54. *kaupha > kaofa 'back, mountain pass' BTHL 431 NP kōh 'mountain', kōha 'hump'; – cf. Ved. kubh° : kubhrā́- 'hump(ed) bull'.
55. *kauš > kaoš 'to kill' BTHL 432 > NP kuštan to kill.
56. *kapas-ti > kapasti name of an infectious disease in war time BTHL 436.
[57. *kapauta > OP. kapauta(ka) 'blue/gray' / Lapis lazuli ~ Ved. kapota 'pigeon' Lub. 303; EWAia I 303 origin unclear, probably IE.
[58. *kapāra > kapāra, Ved. kapā́la 'vessel' Lub. 303; MP kabārag 'vessel'; EWAia I 300: not unanimously expl.; IE: Lat. caput etc.
59. *kapha > kafa 'foam (at the mouth)' = Ved. kapha, NP kaf BTHL 437; Lub. , EWAia I 303: Khot. khavä < *xafa/xapa?, rest unclear.
60. *kan > kan 'to dig' = Ved. khan BTHL 437; EWAia I 446: IIr . *khan :: Iran. kan/xan, cf. khá- 'opening, channel' (ety. unclear).
[61. *ka-mṛda > ka-mərəδa 'head (of Daivic beings', cf. Ved. mūrdhan BTHL 440; EWAia I 285, IE ka-/ku- (pejorative) prefix; II 368: ~ Ved. mūrdhán, PIE *mḷh$_3$dh-on-.
62. *kaya-tha > kaiiaϑa 'a certain sinful act' BTHL 441.

63. *kava > kauua ‘hump’ BTHL 442 ~ Ved. kabandha? – cf. 54 kaupha.

64. *kara > kara ‘name of a (mythical) fish’ MP kar BTHL 443.

65. *karu-š ‘damaged (teeth)’ Lub. 304.

66. *kṛka > kahrka ‘sound of rooster; rooster’ BTHL 452 , NP kark ‘hen’, – cf. Ved. kṛka-vāku ‘rooster’. EWAia I 388: Iran. *kṛka (NÜ); I 136 kahr-kāsa ‘vulture’; probably onomat.

67. *kṛpu-na > kahrpuna ‘name of a Daivic animal’ (‘dog snake’?) BTHL 455.

68. *kṝša > karša ‘ a certain weight’ > Skt. karṣa BTHL 457; EWAia I 342 kārṣāpaṇa ‘coin’ = OP karša ‘a weight’.

69. *kašya-pa > kasiiapa ‘turtle’, Sogd. kyšph, NP. kašaf, etc. = Ved. kaśyapa BTHL 460, Lubotsky 304; EWAia I 331: ‘rest unclear’.

70. *kaćv-īš (instead of kaspīš?) > kasvīš ‘name of an illness’ BTHL 461.

71. *ka-svar-tha > ka-x^{v}arəϑa, -x^{v}areiϑī ‘a class of Daivic creation’ BTHL 462 ~ ‘black’, cf. Gothic swarts.

72. *kṛ-ma > kərəma ‘star, shooting star’ (pairika-) BTHL 469; ~ Ved. kṛmi?? - EWAia I 325 : kərəma ~ Ved. kalmalí? “unclear”

73. *kas-ya > kąnhiia ‘?’ BTHL 472, cf. EWAia I 286: Avest. kąh ‘cling to’??

[74. *kuta-ka > kutaka ‘small’ BTHL 472, MP kōtak ‘little, child’ NP kōda ‘child’, EWAia I 326: cf. O.P. skauϑi ’low, poor’, ~ IE : Goth. hauns ‘low’, etc. : *ku (Ved. ku-ru- ‘denigrator’ K. Hoffmann).

75. *kurit > kuirit ‘collar’ BTHL 474.

76. *kuru-ga > kuruγa ‘name of an illness’ BTHL 474, EWAia II 465: cf. IE*leug, Ved. roj ‘to break’; Avest. urux-ti.

77. *kuć-ra > kusra ‘ arched, domed, hollow’ BTHL 475; cf. Ved. kośa? – EWAia I 360 ~ Ved. *kuś-i?; EWAia I 380: if kusra ‘metal plate?— EWAia I 404: if ~ Ved. kośá, Khot. kūsa ‘vessel’, etc. Unclear beyond IIr.

78. *kuć-ši > Iran. *_kuši_ ‘side of the body, flank’ Ved. kukṣi ‘Backe, Wange; Hinterbacke’; Lub. 304; EWAia I 360: Sogd. qwšy [kusi].

79. *kšīra ‘milk’ > Iran. *xšīra, Ved. kṣīrá, Lub. 304, EWAia I 433: MP šīr, Yigda-Munji _xšīra_. “Extra-IIr. conn. unsure.”

80. *gaisa > (-)gaēsa, gaēsu ‘(curly) hair’ BTHL 479; 1408; ~ Ved. keśa < *kai_ća;_ Lub. 302. = cf. LIV *ḱes ‘abschneiden’? – _g_- according to gaona? – EWAia I 401 about conn.with Ved. kéśa, and possible contamination of *geśa (> gaeṣa/gaēsu) and kéśara.

81. *gauna > gaona ‘hair’ BTHL 482, cf. Afgh. γūna ‘hair, color’, W. Osset. gun ‘hair, color’; cf. Ved. guṇa?

82. *gada > gaδa ‘robber, bandit’ BTHL 488; EWAia I 460 , cf. II 571; if from IIr. *gada, non-IE root structure; but: EWAia I 460: ~ Ved. gadh ‘seize, seize bounty’; Sogd. gd ‘thief’, no extra-IIr.

85. *gada > gaδa ‘illness’’? BTHL 488; note Kuiper 1991: RV a-gada ‘not ill’ cf. EWAia I 460 ~ Ved. gad ‘to speak’? [non-IE]

83. *gad-va > gaδβa, -ā ‘ dog, bitch’ BTHL 489.

86. *gadā > gaδā ‘club’ BHTL 489, cf. Lub. 303 (non-IE root structure); EWAia I 460 ~ Ved. gadā ‘club’; “rest is unsure.”

87. *gaph-ya > -gafiia ‘?’ BTHL 490, 24: PN.

88. *gan-ti > (-)gainti ‘(bad) smell BTHL 493, 1473; cf. Ved. gandha; Lub. 303.

89. *gantu-ma > gantuma ‘wheat’ BTHL 493; cf. Ved. godhūma; P.Kartv. *_ghomu_, Georgian _γomu;_ probably from an earlier **_gənd/gər_ (Bur. _gur,_ Basque _gari,_ etc.) :: **_qnd_: Hittite

kant, Egypt. *xnd*, Semit. *ẖnṭ* (Arab. ẖinṭ$^{\text{atum}}$). – Skt. *godhūma;* EWAia II 498-9*:* loan word, with folk etymology, Witzel 2003.

90. *gu > gu 'hand' (of Daivic beings), BTHL 505, cf. Nep. gu(h)u 'feces', due to S.Asian cleaning method; see *97 gūtha.
91. *gava-na > gauuana 'name of a seed bearing plant/corn' BTHL 510.
92. *gavas-na > gauuasna '?' (name of an animal?) BTHL 510.
93. *gr̥̄nu > garənu ' a skin disease, scab' BTHL 515.
94. *gas-ta > gasta OP, 'disgusting' BTHL 517.
95. *gup-ra > gufra 'deep, secret' BTHL 524. cf. NP žufr, Greek gupē – cf. Nep. guphā; EWAia I 464: ~ Ved. gabhīrá 'deep', Avest. jafra 'deep', jaißi.(vafra) 'deep snow', jafnu : j- < *g(w)embh instead of *gafra, etc. – Root contamination: gufra < gafra *x* gūzra, etc.; not extra-IIr. *jambh/gabh.
96. *gunda > gunda, -ā 'dough used for baking' BTHL 525, MP gund, NP gunda.
97. *gū-tha > -gūϑa 'feces' BTHL 1120; cf. Nep. gu(h)u etc.; see above *90 gu.
98. *gnā-na > γnāna 'a plant used for abortion' BTHL 526.
99. *gra-va > grauua 'cane, stick' BTHL 529, NP γarv.
100. *khau-da > xaoδa 'hat, cap' BTHL 531, W.Osset. xodõ 'cap, hat'; cf. OP. Saka tigra-xauda.
101. *khab(^{h})za > khabza> xaβza 'pederast' BTHL 531, cf. NP xafj 'incubus'.
102. *khan > xan 'spring, well' BTHL 531 ~ Ved. khan, khā//keh2; – Lub. 303; see above 60 *kan.
103. *khara > xara, -ā 'ass, donkey' BTHL 532, NP xar = Ved. khara; Lub. 303; – EWAia I 447: IIr. *khara, 'unclear 'extra-IIr. ~ Akkad. ẖârum, ajarum 'male donkey' – cf. Pashto xəṛ 'muddy, dirty brown' Morg. 1927: 97?
104. *kćā/ksā > xsā 'to teach' BTHL 541 ~ Ved. kśā, cakṣe, kśāta; - EWAia I 420: also Avest. *xsā* 'to view': apparently Ved. kś-a : KĀŚ (MS, KS; *khyā* is later). – On Ved. KĀŚ, EWAia I 344: Avest. kās; perhaps < *k^{w}eḱ? (Gr. tékmōr 'sign')?
105. *kća-trī/ ksātrī > xšaϑrī ' woman, female (animal)' BTHL 547.
106. *kćnu / ksnu > xšnu 'to have enough, sufficient' BTHL 557 NP xšušnūd; EWAia I 441, 436 kṣṇu 'sharpen'.
107. *kćvai-pā /ksvaipā > xšuuaēpā ' backside, arse' BTHL 560 NP šēb; Lub. 302: Ved. śépa; Pkt. cheppā Lub. 302; cf. EWAia I 437 IIr. *kšaip/b unsure.
108. *kćvīd / ksvīd > xšuuīd, xšuuid 'milk, fluid foodstuff' BTHL 562; EWAia I 433 Avest. xšuuiid 'milk' ~ °xšīra, Ved. kṣīra.
109. *čaku-š > cakuš ' hammer (as thrown weapon), throw' BTHL 575.
110. *čag-vas > caguuah OAv. 'offering, granting' BTHL 576.
111. *čas-ra > caŋra(-ŋhak) 'something that is together/common with the (assigned) pasture ' (of domestic animals), BTHL 580; *caŋra 'pasture', MP carak 'pasture' with cross of MP car 'to move about' and cār 'to graze'.

111a. [carāitī 'young woman' (of Ahurian creation) BTHL 581 ~ car.]

112. *ǰai- > $^{+}$jaē(-karšta) '(made by) men BTHL 601, cf. jahī.
113. *ǰau > jau '?' a sin? BTHL 601.
114. *ǰavara > jauuara O.Av. 'deliberation (on human actions, at the time of judgment') BTHL 605.

115. *ǰažu, ǰaju > jažu 'a kind of dog' ; (jaini-)yaska ' a killing desease' BTHL 606.
116. *taira > taēra 'mountain peak' BTHL 623.
[117 *tanura 'baking stove' BTHL 638: from Semitic tanūr; MP, NP tanūr.
118. *tāiyūri > tāiiūri ' a kind of bread' BTHL 647.
119. *t-inja > tinja 'backwards' BTHL 651, cf. inja.
120. *tūtu-k 'clay' BTHL 655 ; cf. Toch. loan(?) tukri 'clay'.
121. *da-ga > daγa 'a bad characteristic of horses' BTHL 675.
122. *dakš > -daxš 'to throw?' BHTL 981; EWAia I 746: Tichy *deiḱ^2 'to throw', not found in Ved.
123. *daćā > Iran. *dasa 'hem, thread ' > Khotan. *dasa,* etc. Lub. 304.
124. *da-bi > daβi 'a certain illness' BTHL 680.
125. *dasa-ka > dahaka 'certain Daivic beings' BTHL 704, see dahaka '?', dahāka. – Cf. EWAia I 724 dahāka 'name of dragon', OP Dāha/Dahae, Dáai; Khot. daha 'man' etc.; cf. II 681 s.v. ṣaṣ.
127. *dānu > dānu 'grain, cereal' BTHL 734, dānō.karš 'carrying away grains'; cf. Ved. dhānā 'roasted grains' EWAia I 787: Khot. etc., Toch. tāno/tāṃ < IE *dhoH-néh$_2$ not sure.– cf. Pashto luna 'boil' NEVP 44.
128. [dānavāza 'name for ābərət-, BTHL 734.]
129. *diću > disu 'name of a predator, active at night' BTHL 747.
130. *duthu-bi > duϑuβi.(buzdi) 'fear, anxiousness' BTHL 749.
131. *duma > duma ' tail' BTHL 749, NP dum, dumb; cf. EWAia III 267 (dumbaka 'fatty tailed sheep') 447 lūma < E. Iran).
132. *dum-na > dumna '?' hand? BTHL 750.
133. *dujaka > dužaka/žužaka? 'a name of the hedgehog' BTHL 755, MP žužak, NP žuža; – Lub. 303: Ved. jáhakā; Bal. jajuk, dužux; NP žūža – 303/4: *ǰaǰhaka/ā // *ǰaǰhuka/ā 'hedgehog'. – cf. EWAia I 582. – See *ditto*, Szemerényi, Orbis 19: 501sqq: IIr *ǰaǰ(h)uka/ ǰaǰhaka; see below *362.
135. *dṛša / dṝša : Iran. *darsa 'coarse woolen garment', in: Wakhi δərs/dirs, etc. : Lub. 303/4; EWAia I 740 ~ Ved. dūrśá 'coarse garment' < IE *dṛH-ḱó-.
136. *dvaiša > duuaēša 'pain, suffering' BTHL 764 < *d(h)vaps(h)a; – cf. EWAia I 770 (IIr. dwaiš 'to hate').
137. *drap-sa > drafš̃a 'banner' BTHL 771, Ved. drapsa; NP dirafš̃ [not useful: EWAia I 755 ~ drāpi- 'cloak' : I 758].
138. *dri-bi > driβi 'spot, birthmark' BTHL 778.
139. *dri-bi-ka > driβika 'moaning, howling' BTHL 778.
140. *druka > druka 'an illness' BTHL 778.
150. *thangu > ϑangu 'name of a plant' BTHL 785.
151. *thura > -ϑūra 'victorious' BTHL 92 (Y.Avest. & OP.), 786 – Persianism in Avest.? then: cf. EWAia I 650: Avest. sūra 'strong', Med. *sūra, MP sur. IE *ḱuh$_1$ro (~śav).
152. *tvā-ša/tvāk-sa > ϑβāša 'atmosphere' BTHL 797.
153. *trans > ϑraŋh 'mouth' BTHL 801.
154. *paina > paēna 'honey' BTHL 817.
155. *paina-ina > paēnaēna 'made from honey' BTHL 817; from *painā > paēnā 'honey'.
156. *pakru-ma > paxruma 'firm, fast' BTHL 819; of penned up cattle, not those on pasture.
157. *pabrā-na > paβrāna 'mountain incline, ravine' BTHL 844.

[158. Pairikā 'sorceress, witch' BTHL 863; or: < *pari-H_3k^w 'looking back (over shoulder'); NP parī 'Peri'.
169. *pavas-ta 'cloth' > OP pavastā '(clay) cover (for unbaked clay tablets)'; RV pavásta 'blanket, cover'. Lub. 304. EWAia II 105: IIr.*pavasta, extr-IIr. unclear.
170. *par-ša > parša 'ear of corn' BTHL 877 = Ved. parṣá, EWAia II 101: rest unclear.
[171. *parš-vya > paršuiia 'snowy-', name of certain types of water BTHL 878; II 191: pruṣvā' "dew, cool dew", ~ proṣ 'to drip'~ Germ. frieren, Frost etc.
172. *paću-vr̥̄jda? > pasuuarəzda 'name of a plant' BTHL 884 – ~ Ved. *paśu-vṛdh?
[173. *pazdu > pazdu 'name of certain small damaging animals, beetles, caterpillar?' BTHL 885; cf. NP pazdak 'grain mite'; EWAia II 167: *pazdú 'insect; Avest. 'beetle, mite'; ~ *pesd 'to fart', Latin pēdis 'louse'… cf. Ved. Pedu?
174. *pā-pā 'bad' > Iran./Avest. pāpa: papō.vacah; Ved. pāpá, Lub. 304, EWAia II 120: origin uncertain; Gr. pēma 'suffering, distress'??
175. *pić-ta / piš-ta OP, 'written' BTHL 1083; NP niwišta, E.Oss. nifišta 'script' > Asoka Pkt: nipista.
176. *pikha > pixa 'knot' BHTL 1045; NP pixak 'knot'.
177. *pīyu-šā > Iran. *pīyuša,* Wakhi *pyix'*, Munji *fə'yū* 'biestings'; Ved. piyū́ṣa 'biestings' < *pīyūša-; Lub. 304, EWAia II 138: certainly ~ pay, payas; - note Bur. *buruš* 'boiled butter'.
178. *pis-ra > pisra 'implement for smelting': see Blazek 2003 : 7-8: ~ IIr. *ćipra > Ved. śilpa, Avest. pisra/srifa?
179. *puća > pusā 'diadem' BTHL 911, 1679.
180. *baivan > baēuuan, baēuuar '10,000' BTHL 913; NP bēvar; [EWAia II 750 baēuuarzə-fraskəmba].
181. *b(ʰ)aiš-aj-a > baēšaza 'healing', bišajiia- 'to cure' ; biš BTHL 914 = Ved. bheṣaja; – a BMAC loan; note suffix -aj , no Vṛddhi; see biš/ Ved. bhiṣ, bheṣajya 'healing', Lub. 304, EWAia II 264: IIr. *bhiš; ~ IAr. bhās 'to speak' ??
182. *bauću > baosu 'a certain sinful action' BTHL 920.
183. *bata > bata; -bata 'threshed' BTHL 87, 924.
184. *b(ʰ)anga > baŋha, bangha 'hemp, narcotic Bhang' BTHL 925; -baŋha 'Bhang' BTHL 87; NP bang 'Bilsenkraut'; = Ved. bhaṅgá ' a grass' in PS/AV; later: 'hemp, Bhang'. EWAia II 241: apparently not IIr. (I 800: a-baŋha 'not liable to perish', Henning).
185. *barg > barəg 'to welcome' BTHL 945, cf. IE $bhergh_1$ "hochwerden/ s. erheben."
186. barəs-man 'bundle of twigs in ritual', BTHL 947; EWAia II 212 cf. Ved. bársva 'gums'(note *–s-*); Avest. barəziš 'cushion'; - II 214 ~ barhíṣ offering strewing' ~ IE *bhelǵh 'to swell'; - II 238 barəsman ~ brahman – cf. I 191 ~ idhmā'-barhíś.
187. *barća / barša > barəša 'neck or back of the horse' BTHL 951; NP buš 'neck', Pashto: wraǵ 'mane (of a horse)' NEVP 89.
188. *baši > baši 'a measure of length' BTHL 952.
189. *bāda > bāδa 'indeed' BTHL 953; cf. bā, bāiδištəm; bāt̰ – Ved. baṭ, bata (exclamation); phaṭ.
190. bāt̰ BTHL 954, see preceding.
[191. *baz-vant? > bəzuuant 'firm' BTHL 962. EWAia II 221 'thick'? IIr.? ~ Ved. bahu…; then Iran. *bazu- < IE *bhn̥ǵhú-.

192. *ban-tra > bąϑra 'illness' BTHL 962.
193. *bānsnu > bąšnu 'height, depth/altitude' BTHL 963.
194. *b(^{h})iš-aj > bišaz 'to heal' BTHL 966; see baēšaz; ahūm.biš; above 182 baēšaza.
195. *brava-ra > brauuara '?' a plague of Bactria' BTHL 971.
196. *pusća 'tail' > Iran. : Avest. pusa? 'wreath, crown'? Ved. púccha; Lub. 304, EWAia II 140: "not explained to satisfaction."
197. *pyasu > fiiaŋhu 'hail' BHTL 973.
198. *praith > fraəϑ 'to putrify, decompose' BHTL 974; cf. Ved. mrityati 'decomposes'?
[199. *praur-pa? > fraorəpa 'mountain (chain)' BHTL 976; EWAia I 230: < fra-varpa (relating to mountains), ~ varp° < *wḷHp ~ Ved. úlapa- 'herb, bush'.
200. *pravi > frauui 'prospering?' BHTL 991.
201. *praša-na > frašana 'testicles, scrotum' BHTL 1007.
202. *prā-pa > frāpa '?' (said of Satavaēsa) BHTL 1015.
203. *prāšmi > frāšmi '?' said of the deity Haoma BHTL 1022.
204. *psu-tā / pśutā > fšutā 'cheese' BHTL 1029.
205. *naij(s) 'spit' > Avest. naēza- 'pin of needle' Lub. 304. EWAia II 41: ~ nikṣ 'pierce'; no extra-IIR.; ? IE *neiǵ(h)(s); cf. II 49 níh- "piercing"?
206. *naija > naiźa > naēza 'a certain illness' BHTL 1037; w.Osset. nēz, E.Osset. nīz 'illness' (cf. 205 :: 'piercing pain??).
207. *naija > naiźa > naēza 'lump, mass of mud, clay' BHTL 1037.
208. *nagna-(jhu) 'bread' > Iran. *nagna 'bread', Ved. nagná(-hu) 'yeast' Lub. 304; EWAia II 6: MP, NP nān, Sogd. nγny, etc.; *nagna 'bread' only in Iran.
209. *nauth > naoϑ 'to make a whizzing sound' BHTL 1038.
210. *natha > naϑa 'a certain part of dress' BHTL 1038.
211. *nath > naϑ (vī.naϑ) 'to skin' BHTL 1038.
212. *nṝp > narəp 'to wane (of the moon)' BTHL 1053; cf. IE *nerH$_1$ 'untertauchen'?
[213. *naska 'bundle (of holy texts) BTHL 1060; cf. O.Irish nascim 'I bind'; EWAia II 32: < nad-ska? ~ nada 'head cover', Iran. *nad 'to tie'? :: Ved. nah ?
214. *nāšni '?', (certain actions) BTHL 1065.
215. *nama-ta > nəmata '(small) twigs' BTHL 1068; > Skt. namata EWAia III 'felt', from *nam 'to beat?'.
215a. *namat-ka > nəmaϑkā '(small) twigs' BTHL 1068; see: namata.
216. *nikša-ta > nixšata 'downward from' BTHL 1080 : ni-xš?
[217. *ny-āka > OP nyāka; -ā 'grandfather, grandmother' BTHL 1094, cf. Witzel 1972 *ni-Hk^{w}o- 'hinten befindlich'.
218. *maik-ant > maēkant 'seeping out' BTHL 1104; *mik?, NP makīdan, mazīdan 'to suckle, taste', S. Bal. micag 'to suckle'; ~ maēga / Ved. megha 'cloud'? < mih 'to urinate': change as in keśa : gaēsa?
219. *mait > maēt 'to say' BTHL 1105; cf. maēϑ: t : th.
220. *maith > maeϑ 'to send, mittere' BTHL 1105.
221. *mith cf. Lat. mittere; cf. IE meith$_2$ 'wechseln'.
222. *maiša > maeša, -ī 'sheep' BTHL 1109 = Ved. meṣa, NP meš, etc. EWAia II 380: IE *moiso or *maiso?, cf. Lith. maìšas 'big sack', Russ. mech 'skin', O.Norse meiss 'woven carrying basket'.
223. *maga > maγa, -ā 'hole in the ground, hollow' BTHL 1110; NP maγ 'depth; cf. maγāk 'hollow'; - EWAia II 289: different from Ved. maghá "gift" etc.

224. *maga-va > maγauua 'not married' BTHL 1111; from * magu 'celebs'.

[225. *mag-na? > maγna 'naked' BTHL 1112; Ved. nagna, W.Oss. bōγnōg, Gr. gymnos : diff. *anlaut*; certainly with dissimilation in Avest. n–n > m–n ; – But MIr. etc. with b- : Sodg. ßγn'k etc.; EWAia II 5: IE *neg^w-nó, with secondary change to PIr. *magna-.

226. *makši > maxšī 'fly, bee' BTHL 1112; = Ved. makṣ(ikā)- 'bee, fly'; – loan, Finno-Ugr. etymology mekše, see Witzel 2003, etc. EWAia II 287: Finno-Ugr. from pre-IIr. mekš-. – ote Ved. maśáka 'mosquito' > Iran. *makasa: Parth msg, NP magas, Yigda moγuso (EWAia II 334: many distortions…; cf. Latv. masals, masal 'horse fly'?).

227. *mats-ya "fish' > masiia; Ved. mátsya Lub. 304, EWAia II 298; EWAia II 297: IE ~ Germ. *mati 'food', Goth. mats.

228. *madakha > maδaxa, -ā 'grass hopper', a Daivic animal, BTHL 1114; NP malax.

229. *madhu > maδu 'wine' BTHL 1114; opp. of hurā; – loaned into C. Asia and China, see Witzel 2003; note Pāṇini maireya, cf. O.v.Hinüber, *Überblick*. – EWAia II 302, 303, I 45 on Avest. maδu-: Sogd. mdw, Osset myd/mud 'honey' etc. (Gr. methu-).

230. *maya-s > maiiah 'coitus, cohabitation' BTHL 1141. – If, inspite of semantics, with EWAia II 315: ~ Ved. máyas 'refreshment' etc., then IE *mei(H)-es; – or Ved. MAY^2 'exchange ???

231. *mayūkha > mayūxa 'wall peg' OP. Lub. 303: ~ ved. mayū́kha 'Stab zum Aufspannen des Gewebes'; OP mayuxa; MP mēś, Sogd. myγk 'peg', etc. - Lub 303. – EWAia II 317: OP |myux|, Sogd. myγk, NP mēx etc., ~ Ved. MAY^1, which is unlikely, see Lub. 2001.

232. *mr̥̄-da > marəδa '?, a plague of Margiana' BTHL1151.

233. *marjiš-ta > -marəzišta '?', of the Cištā; BTHL 1083.

[234. *maj-ga > mazga 'marrow , brain' BTHL 1159; NP mazg, EWAia II 291 ~ Ved. majján 'bone marrow', < IE *mosgh, OHG marg etc.; but Ved. jj instead of *jjh :: *mosgh-.

235. *mr̥ga > mərəγa 'bird' BTHL 1172; NP murγ 'chicken', Ved. mr̥ga 'wild animal, antilope' EWAia II 370: "origin unclear."

236. *mr̥ju > mərźu > mərəzu 'vertebra of spine' BTHL 1173; EWAia II 334: ~ Ved. malhá see *238: IE *melǵh 'to swell', cf. Avest. mərəzu 'neck vertrebra'.

237. *mr̥ju > mərəzu '?' BTHL 1174; cf. EWAia II 364 mərəzu 'short' see Ved. múhur 'suddenly'?

238. *mr̥jā-na > mər*źāna* > mərəzāna 'belly' BTHL 1174; NP mulān; EWAia II 334: ~ Ved. malhá 'having a growth on the neck', Avest. mərəzāna 'belly'~ IE *melǵh 'to swell', cf. Avest. mərəzu 'neck vertrebra'.

239. *maljha? 'belly, growth on the neck' EWAia I 334, Lub. 304: cf. Avest. mərəzāna 'belly', maršuiiå (gen.sg.). – EWAia II 334: Ved. malhá 'having a growth on the neck' ~ IE *melǵh 'to swell', cf. Avest. mərəzu 'neck vertrebra'.

240. *mid-ka > -miδka- see BTHL 1533.

241. *minu > minu 'neck pendant' BTHL 1186, 1679; – Mitanni IA *mani-nnu*, Avest. (*zarənu.)maini, Ved. maṇi;* EWAia II 293: Iran. *mani < IE *monh$_2$i-, moneh$_2$- 'neck': OHG mana 'mane', Latin monīle 'neck band', etc. ; – does not explain -*ṇ*- (see Mayrh. on "spontaneous" -*ṇ*-).

242. *mušta-maša > muštəməša 'myrrh' BTHL 1189; NP mūrd.

243. *mrauda > -mraoda 'whoring' BTHL 392.

244. *mruvi? > mruuī 'quarrel' BTHL 1197 – cf. Ved. brū/Avest. mru, see *mleuh$_2$ 'sprechen'.

245. *yama > yama ‘glass, glass vessel’ BTHL 1264; cf. yāmō- *248.
246. *yu > yu ‘extent (of time)’ BTHL 126.
247. *yas-ka > (-)yaska ‘illness’ BTHL 148, 605; NP yašk ‘misfortune’; – note again BMAC – ka suffix.– EWAia II 392: connection with Ved. yákṣma ‘wasting) desease’ only accidental, or taboo word? < IE *yeksko-?
248. *yama ‘glass/mug’ > yāmō.[pacika xumba] ‘a device to make glass; glass furnace’ BTHL 1286; cf. yama; NP jam ‘glass, mug, beaker’ — cf. above *245.
249. *yavīyā ‘canal’ Lub. 303: Ved. yavyā́, yauviyā OP. EWAia II 405: no secure connection with verbal root and extra-IIr.
250. *yāć > yās ‘ to desire’ BTHL 12881 NP yāsa ‘wish, desire’; Gr. ēkō?; cf. IE *ies ‘sieden’??
251. *yās > yāh ‘crisis, decision, turning point’ BTHL 1291.
252. *vaith > vaēϑ ‘to get to know’ BTHL 1321, see vaēd.
253. *vaith > vaēϑ ‘to establish in court’ BTHL 1321.
254. *vaima > vaēma ‘cleft in rocks’ BTHL 1326; cf. > Arm. vēm ‘rock’.
255. *vagtha-na > vaγϑana ‘head of Ahurian beings’ BTHL 1326; MP vaγdān; “not: vak (BTHL).”
256. *vaph? But: [vaf ‘to sing about s.o/s.th.’ BTHL 1346; from ‘to weave’, cf. Ved. vayati; NP bīfad ‘weaves’] – EWAia III 506 vabh ‘to bind’, °vabhi ‘weaving’, ~ Avest. vaf ‘to sing, praise’, MP waf ‘to weave’; etc. vafuš ‘Spruch’.
257. *vapra > vafra ‘snow’ BTHL 1347; MP vafr, NP barf, see above 95: jaiβi.(vafra) ‘deep snow’; EWAia II 505: ‘same formation’ as in Iran *vavrā/a ‘snow’; cf. Khot. bora, MP wafr, etc. (Ved. vaprā ‘fire place’).
258. *varāj^{h}a > varāza > varāza ‘boar’ ~ Ved. varāhá Lub. 303, 304; EWAia 514: MP warāz, etc., IIr. *w(e)roǵho- > Finno-Ugr. loan: Finn. oras, Mordw. urês.
259. *vasa > vaŋhā ‘part of the back’ BTHL 1348.
260. *vi > vi (vinaoiti) ‘to slaughter’ BTHL 1356.
261. *vṛ > vṛ (varənu) ‘to make/get pregnant’ BTHL 1363.
262. *vṛć-ša ‘tree’ > varəša ‘a plant’ ; Ved. vṛkṣá Lub. 304, EWAia II 572: perhaps as *wḷḱ-s-o ~ Ved. válśa-; EWAia II 526 ‘shoot, twig’ IE *wolḱo- ‘hair, etc.’ Russ. vólos’ ‘hair’.
263. *vṝ-ka > varəka ‘leaf of plants’ BTHL1367; NP barg; – SCA –ka suffix; – EWAia II 525: Ved. valká- ‘tree bark’ ~ Avest. varəka, Sogd. wrkr, MP warg etc.; ~ Russ. voloknó ? ‘finely combed Flachs’; cf. valśa.
264. *vṝk-tra > varaxəδra ‘a sinful action’ BTHL 1367.
265. *vajag-na > va*źagna* > vazaγna ‘frog’, a Daivic animal BTHL 1389 (land and water frogs).
266. *vaji > va*źī* > vazī ‘suckling, giving milk (cow)’ BTHL 1391.
267. *vaš > vaš ‘to say’ (Ahuric) BTHL 1392; cf. aoš; S.Bal. gvašag ‘to say’ – cf. IE wek^{w} ‘speak’?
268. *vāidi-mid-ka > -vāiδimiδka see BTHL 1533.
269. *vṝd-ka > varəδka, vərəδka ‘kidney’ BTHL 1420; cf. Ved. vṛkkau ; – note diff. in pre-IIr? dialect-; BMAC suffix-ka; – EWAia II 571: Ved. vṛkkā- < IIr. *vṛt-ka-, from vart ‘round’ > Finno-Ugr: Syry. verk ‘kidney’ etc.; *wṛtka ‘kidney’ > Avest. vərəδka > Ved. vṛkkau Lub. 304.
270. *vasunī > vohunī ‘blood’ BTHL 1334; NP xūn, NBal. gvāhar.
271. *vīcica > vīcica ‘chalk, mortar’ BTHL 1437; NP gac ‘chalk’; only in : ... vīcicaēšva ... tūtušva V. 6. 51.
272. *vithu-ša > vīϑušā ‘?, a plague of Margiana’ BTHL 1447.

273. *viju > viźu > vīzu ‘a kind of food’ BTHL 1471.
274. *vya-tra > viiaϑra ‘hope’ BTHL 1475.
275. *rai-tva > raēϑuua ‘mixture, mess, confusion’ BTHL 1482.
276. *rai-tva > raēϑuua- denom. pres. stem ‘to mix’ etc.
277. *raug-na > raoγna ‘butter’ BTHL 1488; NP rōγan ‘clarified butter’.
278. *rauja? > raoža ‘a predator, fox or jackal’ BTHL 1496; Yidga: ruzo ‘fox’; Phl. transl. rōpās, EWAia II 483: ~ Ved. lopāśa ‘jackal’; Iran. *raupātsa ~ Gr. alō’pēx ‘fox’; IE *$h_2$leupēḱo- > FinnUgr.; cf. words like Avest. raopi ‘a certain type of dog’; urupa ‘a kind of fox’, raoža.
279. *rap > rap OAv., YAv. ‘ to give/find assistance’ BTHL 1508; – in view of k/g, t/d, etc. ~ Ved. labh?
280. *ras > rah ‘to defect, to make one defect’ BTHL 1517.
281. *rāth > rāϑ ‘to adhere, stick’ BTHL 1522.
282. *rātha > -rāϑa ‘inheritance’ BTHL 1037.
283. *rāna > rāna ‘outward part of thigh, thigh’ BTHL 1523; NP rān ‘thigh’; EWAia I 108: ~ araṇī : “als Metonymie für die beiden Reibhölzer… .”
284. *rāma > rāma OAv. ‘cruelty’ BTHL 1524 – cf. IE *lemh ‘brechen”?
285. *rāć > rās ‘to give, move’ or similar BTHL 1525.
286. *rarāj > rarāź > rarāz ‘to go’ BTHL 1526; NP gurāzīdan ‘to prance’; BTHL compares O.Oscian slaagim ‘path’.
287. *(v)rut-van > uruϑuuan/r ‘entrails, belly’ BTHL 1531; NP rūda, N.Bal. rōϑ ‘entrails’.
288. *(v)run-ya > uruniia ‘vessel’ BTHL1532.
289. *(v)ruvan > uruuan ‘soul’ BTHL 1541: < IIr. *(s)ruuan?
290. *(v)ruvāk-ra > uruuāxra ‘heat’ BTHL 1541.
291. *(v)ruvāć-nā > uruuāsnā ‘a certain plant, whose soft wood is used as frankincense, and for maintaining the sacred fire’ BTHL 1544.
292. *ćai-pa > saēpa ‘welding, smelting’ BTHL 1547 – detailed discussion V.Blazhek, “Is Fenno-Lappic *śeppõ ‘smith’ of (Indo)Iranian origin?” *Philologcia Fenno-Ugrica* 9 (2003) 1-10.
293. *ćaina > saēna ‘eagle’ BTHL 1548, ~ Ved. śyena < IE*ḱ(y)eina? - EWAia I 221; II 662: Ved. śyená ‘falcon’; Elam.-Iran. syaina. Perhaps < designation of color: IE *ḱi-ei-no, ḱieh$_1$-ino-??
294. *ćaukan-ta > saokənta-vant ‘containing sulphur’ BTHL 1550; N.P. saugand.
295. *ćauca-ya > saocaiia ‘a sinful action’ BTHL 1550.
296. *ćak > sak ‘to pass (of time)’ BTHL 1553.
297. *ćaci > saci ‘ an illness’ BTHL 1554.
298. *ćana-ka > sanaka ‘mouth (of a river)?’ BTHL 1558.
299. *ćargan > sarəgan OAv. ‘helper’ BTHL 1566.
300. *ćard > sarəd, OP ϑard ‘species’ BTHL 1566.
301. *ćar-ya > sairiia ‘(dried camel) dung’ BTHL 1567; MP sargīn ‘dung’.
302. *ćā > sā O.Avest. ‘to ward off, fight off’ BTHL 1569.
303. *ćādayantī > sāδaiiantī ‘a garment, dress’ BTHL 1570 – EWAia I 555: Morg. 1927: 60: sāδaiiantī ‘long trousers’ (“covering”: Ved. chādayati) ~ Pashto *psōlən* ‘put on (clothes)’ etc.

304. *ćāra-na > sārana 'an illness' BTHL 1572.
305. *ćāras-tya > sārastiia ' an illness' BTHL 1573.
306. *ćima > sima 'creating horror' BTHL 1580.
307. *ćuku-rna (<*ḱukur-na) > sukurəna 'a kind of dog' BTHL 1582; NP sugur; – cf. Skt. kurkura, Pali kukkura, Nep. kuk(k)ur, etc.
308. *ćudu-š > suδuš 'mill?' BTHL 1583; cf. x^{v}aēd, pištra, gunda; EWAia II 657 "apparently 'sieve' (Geiger/K.Hoffmann *Aufs*. 884, n. 9) ~ Ved. śudh 'to cleanse': Phl. transl. swpt [suft] 'pierced through'.
309. *ćupti-darnga > suptiδarənga 'belonging to the same county' BTHL 1583.
310. *ćub-ra > suβrā 'arrow' BTHL 1583; PDš surb 'arrow'; – cf. however now Lawergren at the 3rd Harvard Round Table, 2001: 'small trumpet'.
[311. *ćūra > sūra ' hole, lacuna' BTHL 1585; cf. NP sūrāx; EWAia II 650: Ved śū́na- 'dearth, emptiness'; ~ Gr. kúar 'ear of needle, ear opening', Toch.B kor 'throat' < IE *ḱuH-r/-n- 'hole' etc.
312. *ćuš > suši 'lungs' BTHL 1586; MP, NP šuš; Kurd. šōš EWAia II 677: ~ Ved. śvas 'snort'; Khot. suvä lungs, etc. < IE *ḱues, O.Norse hvæsa 'snort'.
313. *skati > skati 'locust?' BTHL 1586.
314. *skara-ka > -skaraka 'making fun of' BTHL 79.
315. *skar-ya > skairiia 'a kind of stove' BTHL 1587.
316. *skanda > -skənda 'bodily harm, illness' BTHL 211; EWAia II 750: ~ Ved. skandhá- 'shoulder bone', skandhas- 'twig' ~ a lost root *skandh 'to break (off) ~ O.Avest. skəṇdō 'damage, YAvest. skəṇdō 'illness, bodily harm, damage'.
317. *sćāga / sćaga 'billy-goat' > Iran. *saga?*;* Osset. *sæg; sægæ "koza"* = Ved. chā́ga 'ram', Lub. 304; EWAia I 558: > Mordw. śava 'goat'; – extra-IIr. conn. uncertain. – Cf. Caucasian: Adyge āča; Bur. aćas :: IE *Haǵ, etc., Witzel 2003: 21.
318 . *star > star 'to sin' BTHL 1597; cf. MP āstār 'sin'.
319. *stamba > stəmba 'quarrel, fight' BTHL 1606; NP sitamba 'quarrelsome'.
320. *stig > stig 'fight' BTHL 1607 ; MP stēžītan, NP sitēγ, sitēz; – cf. IE *steigh 'steigen, schreiten??
321. *stip-ti > stipti 'an insect, parasite on dogs' BTHL 1608.
322. *stu-ka 'tuft of hair' > Ved. stúka, stupá Lub. 304, EWAia II 760: Osset. styg/œstug 'bundle, lock'.
323. *spar-sa > sparŋha 'gum (of jaw)' BTHL 1613.
324. *spaj-ga > spaźga > > spazga 'slanderer, denouncer' BTHL 1615; MP spazg , cf. NP sipazgī.
325. *spā > spā 'to throw' BTHL 1615.
326. *spāt > -spāt ' a certain plant; cushion' BHTL 1003; Iran. *frapās.
327. *spāda > spāda > OP spāda, Avest. spāδa 'troop, army' BTHL 1617; NP sipāh.
328. *spā-ra Lub. 302, NP supār 'ploughshare' etc. : ~ Ved. phā́la, EWAia II 203: < IIr. *sp(h)āra ~ PHAL 'to split, burst open' <sp(h)aR?
329. *spya/spā > -spiia/ -spā 'to bury ' BTHL 1059, 1060.
340. *spiš > spiš 'louse, etc.' BTHL 1625; MP spiš, NP spiš, spuš.
341. *snauda > snaoδa ' clouds' BTHL 1626.
342. *snaud-ant > snaoδant 'crying, screeching' BTHL 1626.
343. *snākan > snākan 'a kind of food' BTHL 1629.

344. *ć/syaǰg > fra-siiazg ‘to chase (away)’ BTHL 1630 [cf. EWAia II 655 siiazd/sižd ‘to go away’ ~ Ved. ŚEṢ ‘to leave a rest’? No extra-IIr. conn.].
345. *sravasu > srauuaŋhu ‘gliding stealthily, creeping’ BTHL 1643, 1649; EWAia I 687: “if ‘creeping’, sr(a)uuaṇt ‘approaching while creeping’, < *tsrau°- ~ Ved. TSAR, IE perhaps *t-sel < d-sel, from *(H?)d- etc.
346. *s/ćrask > srask ‘to drip’ BTHL 1644; MP srixt ‘dropped’, Arm. srskel ‘to sprinkle on’; saraska ‘tear’; MP sirišk ‘tear’.
347. *sripha > srifa ‘(animal) nostril ‘ BTHL 1646; EWAia II 637: Ved. śíprā ‘lip, moustache’ ? etc. – Avest. srifa < *sifra? – No extra-IIr. connection.
348. *s/ćrū-tra > -srūϑra ‘name of first half of night’ BTHL 94.
349. *ǰakša-tra > źakšaϑra > zaxšaϑra ‘denigrating speech, blasphemy’ BTHL 1657.
350. *ǰanda > źanda > zanda ‘name of a certain heretic’ BTHL 1662.
351. *ǰava-s > źavas > zauuah OAv. ‘strength’ BTHL 1669; [EWAia I 580: ~ Ved. JAV ‘to be quick, hasten’].
352. *ǰ(^{h})armiya ‘firm structure’, Avest. zairimiia°; zairimii-aŋura ‘tortoise’; Lub. 304; EWAia I 49; II 807: ~ Ved. harmyá- ‘strong house, ruler’s house’; unclear origin of IIr. *ǰhar-miia-.
353. *ǰ^{h}army-asura > Avest. zairimiiaŋura ‘tortoise EWAia (see harmya-); cf. EWAia I 49.
354. *ǰarma-ya > źarmaya > zarmaiia ‘springtime’ BTHL 1683 – gharma ‘hot’; Iran. summer month? – But: Avest. garəmma ‘heat’, OP. garma-pada etc. < IE * g^{w}hor-mó-.
355. *ǰarš-tva > źarštva > zarštuua ‘stone’ BTHL 1684.
356. *ǰāvar > źāvar > zāuuar ‘(physical) strength’ BTHL 1689; cf. NP zōr – cf. 351 ǰavas.
357. *ǰmanā > źmanā > zəmanā ‘payment’ BTHL 1690.
358. *ǰgṛsna > źgṛsna > zgərəsna ‘round, convex’ BTHL 1698; cf. NP gird ‘round’.
359. *ǰrada > *źrada* > zrāδa ‘armour, collar’ BTHL 1703; MP. zrēh; Arm. zrahk’; NP zrih.
360. *ǰru-van > źruvan > zruuan ‘time, point in time’ BTHL 1703; MP zrvān; Arm. zruan.
361. *ǰajǰha-ka/ā / *ǰajǰhuka/ā ‘hedgehog’ < > *dujaka > dužaka/ žužaka? ‘a name of the hedgehog’ BTHL 755, MP žužak, NP žuža; – Lub. 303: Ved. jáhakā; Bal. jajuk, dužux; NP žūža; EWAia I 582 — see above *133.
362. *šan-man > šanman > šanman ‘throw’ BTHL 1705; EWAia I 422: apparently ‘blade, point’ ~ Ved. kṣádman < kṣ/š < IE *ḱs- ‘cut, laughter… No extra-IIr. conn.
363. *šam > šam ‘to swallow’ BTHL 1705.
364. *šu > šu ‘to scratch’ BTHL 1707; cf. Ved. śas ‘to cut’.
365. *šā-man > šāman ‘feces’ BTHL 1708; cf. Ved. śakṛt etc.
366. *švai-pa ‘tail’ LUB 304; EWAia II 654 Ved. śépa(s)- ‘tail’; “not sufficiently epxlained” (cf. II 637 on saēfa); note šv-: š-/*s.
367. *(sau)-s/ćafna-ina > hao-safnaēna ‘made of steel’ BTHL 1737, see next.
368. *(sau)-s/ćafna-ina-ćaipa > hao-safnaēnō.saēpa ‘where steel is welded’ BTHL 1737 – see Blažek 2003: *safna ‘iron’ ~ saēp ‘smelt’ s.v.; Sogd. spnyqry [spanē-karē] ‘smith’; Avest. safna < *spana: Sogd. *aspan-, Khot. hīśśana, Pashto ōspan, Oss. aefsaen etc. etc.; Hitt. kuwanna(n) ‘copper, precious stone’ < IE * ḱwṇHo-.
369. *sakha > haxa ‘sole (of foot)’ BTHL 1744.
370. *sadanaipatā > haδānaēpatā, -pātā ‘a plant used as incense, and for sacred fire’ BTHL 1758.

371. *saprćī > hapərəsī ‘a plant, not used for sacred fire’ BTHL 1765 (haptāždyai ‘?’ BTHL 1766).
372. *su > hu ‘to stew, to roast’ BTHL 1782.
373. *sr̥-ta > harəta ‘having a certain illness’ BTHL 1789.
374. *sard-iš > harədiš ‘madness’ BTHL 1789; NP hāla ‘mad person’.
375. *sāku-rna > hākurəna OAv. ‘help, assistance’ BTHL 1801.
376. *sāršī > hāirišī ‘female (of humans and animals)’ BTHL 1806 hąm.iuuā ‘part of the horse drawn wagon, perhaps poles’.
377. *sika-rna > hikarana ‘round’ BTHL 1812.
378. *sikā > OP. ϑikā ‘sand’ –Lub. 302; EWAia II 728: Ved. sikatā ‘gravel, sand’; – Khot. siyatā, Sogd. šykth, Pashto səga, etc.; note Iran. *s-/š- :: Ved. s-.
379. *sik-ra > hixra ‘fluid excrement’ BTHL 1812; MP hixr – cf. above 265 śakar- / śakn- / śakr̥t : MP sargēn, Bal. saγan, Khot. satana < IE *ḱok^{w}r/n-, Gr. kópros :: *sokr/n- > Hitt. šakkar/šaknaš, Gr. skōr/skatós : s/ś <ḱ.
380. *suyāgna > huyāγna ‘sharing a bed, room’ BTHL 1835.
381. *svaina > x^{v}aēna ‘glowing’ BTHL 1861.

§ 8. A provisional list of personal and geographical substrate names (in their Avesta and and O.Persian forms)

Aošnara ‘?’ PN BTHL 44
Akayaϑa PN BTHL 46
Axtiia PN of a non-believer BTHL 51
Aϑu(-tavah) PlN of a mountain BTHL 61
Apaxšīra ‘without milk?’ PlN (name of a country) BTHL 73
Aŋhuuī PlN , name of a country BTHL 112
Ankasa PN of a believer BTHL 130
(Antarə.)Kaŋha PlN, name of a mountain range BTHL 133
Ainiiāva PN, name of a believer BTHL 138
Amru PN, name of a believer BTHL 147
Auuaiia PN of a believer BTHL 175
Ara PN of a believer BTHL 186
Auruua-sāra PN BTHL 201
Arəzūra PN of a Daiva BTHL 202
Aršādā O.P., PlN, name of fortress in Arachosia BTHL 204
Asagarta O.P., PlN, name of a country, Sagartia BTHL 207
Asabana PN, name of a Turanian family BTHL 207
Āϑrauuan/aϑaurun = Lub. 303 Ved. átharvan
Ərəxša PN, a famous myth. archer BTHL 349
Indra = Ved. Indra BTHL 367
Usig PN, Old Av. ; name of some teachers inimical to Zorastrianism’ = Ved. Uśij, BTHL 406; Lub. 304
Ušaoma PlN, name of a mountain BTHL 414
Kaēuua PlN, name of a believer BTHL 429
Kaoiriša PN, name of a mountain (range) BTHL 432

Kakahiiu PlN, name of a mountain BTHL 432; ka-kah?
Ka-xuzī PN, a class of female Daivic beings BTHL 432
[Ka-x^{v}arəϑa, -ī 'name of Daivic beings' BTHL 462; – note Arm. kaxard 'pharmakos, goēs'; and Kashm. Skt. (Rāj.) *kaḥkhorda* etc. see CDIAL.
Katu PN, name of a believer BTHL 433
Ka(m)pada O.P., PN name of an area in Media, Cambadene BTHL 436
Ka(m)bujiya O.P., PN, Cambyses BTHL 436
(-)Kaŋha PlN, name of a country; upa-° a mountain range; MP kang-diz BTHL 133, 437
Kauuāta PN a certain Iranian nobleman, prince BTHL 443
Karsna PN, name of a believer BTHL 456
Karšnaz PN, name of an Iranian family BTHL 459; for -az see Skt. tṛṣn-aj; bhiṣ-aj, baēš-az-
Kāpiša-kāni OP, a fortress in Arachosia; BTHL 463 ~ *kāpiša NP kābīša, kafša Carthamus tinct.; 'Färberdistelhorn'?; – cf. S. Shaked, Bactrian Docs. 41; also: casta-kana 563, Dasta-kāni 702; cf. Kāpiśī, Pāṇini
Kąsaoiia PlN, name of Hāmūn lake; BTHL 472
Kąsō.tafəϑra PlN, name of a mountain (chain) BTHL 471
Kuganakā OP, name of a town in Persia, BTHL 472
Ku(n)dru OP, PN name of a town in Media, BTHL 473
Kunda, -ī PN name of demons BTHL 474
Kuirinta PlN 'name of a town and river' BTHL 476 = modern Karind, on the Zagros pass; – cf. KEWA kalinda
Ga(n)dāra OP, PlN Gandhāra , BTHL 488
Ga(n)dutava OP, PlN, name of an area in Arachosia BTHL 489
Gandarəβa PN 'name of a demon' BTHL 493; ~ Ved. Gandharva, Lub. 303
Gandrəβa PN 'name of a believer' BTHL 493 , see Gandarəβa
Gauua 'Sogdia' BTHL 509
Γaši 'name of a Daēvī ' BTHL 517
Xnənta PlN 'name of a country, Hyrcania' BTHL 533; Humbach restores $^+$Xrənta
Xnąϑaitī PN 'name of a Pairikā' BTHL 533 (NB word is not inflected)
Camru PN 'name of a believer' , BTHL 581
Cišpi OP, PN name of a Persian BTHL 599
Taožiia 'name of a people' (at the sources of the Raŋhā river) BTHL 624
Tauruui 'name of a Daiva' BTHL 644: cf Ved. Tūrvi?
Tāravā OP, PlN a town in the Yautiya area of Persia, BTHL 648
*Tīra 'name of a deity, BTHL 651 cf. YAv tīrō.nakaϑβa, Greek Tiri-datēs, Bactrian documents (S. Shaked) Tīri-vahišta.
Tuϑaska PlN, 'name of a mountain (chain)' BTHL 655 : IIr *tudat-ka, like Ved. ejat-ka.
Tusa PN, 'name of an Iranian hero' BTHL 657
(Dasta-kāni) PlN in Bactria, S. Shaked 36)
Dahāka PN, 'name of a legendary Daivic king' BTHL 704; a three-headed monster = Bēvarasp; cf. NP aždāhā 'dragon'
Dāduhya OP, PN 'name of a Persian' BTHL 731
[[Dāštāγni PN of a believer, father of Parō.dasma BTHL 740 = Ved. -Agni]]
Drāϑa PN, 'name of a believer' BTHL 774, short form of name?

Θikā 'gravel, sand' OP: PlN Sikayavatiš; cf. Ved. síkatā , Lub. 302
Θrit PN, 'name of a believer' BTHL 807, ~trā 'to protect?
Θritī PN 'name of second(!) daughter of Zaraϑuštra' BTHL 807
Paēšatah PN 'name of a believer' BTHL 818
(Paiti-)drāϑa PN, 'name of a believer' BTHL 851; see Drāϑa, PN, BTHL 774
(Paitii-)arša-uuant PN, 'name of a believer' BTHL 839
Parāta PN, 'name of a believer' BTHL 856; cf. Ved. ??
Pairištura PN, 'name of a believer' BTHL 867
Parga OP, PN 'name of a mountainin Persia' BTHL 868
Paršinta PN, 'name of a believer' BTHL 877
Pāzinah PN 'name of a believer', BTHL 892; pā-zinah 'free of damages'?
Pouruta PlN 'name of country' BTHL 900; Grk. Paruētai, Aparutai ? ~ with pauruuata/parvata? (ā-iškatəm pourutəm Yt 10.14, see Gershevitch, Skjaervo 1995) 'up to ... I.'
Pitaona PN 'name of a man killed by Kərəsāspa' BTHL 905; cf. Θraētaona
Pisinah PN 'name of an Iranian prince', grandson of Kauuāta; Kauui dynasty; BTHL 907
Pišiyā(h)uvādā PlN, 'name of an area' BTHL 907
Pišinah PlN, name of a lake BTHL 908; now Pišīn on the upper Lōra River
Puϑa PN 'name of an Iranian family' BTHL 909
(Bagā)bigna OP, PN 'name of a Persian' BTHL 922; cf. Gr. (Aria-)bignēs
Baβri PlN, 'name of a town, Babylon' BTHL 925; unlikely ~ OP. Babiru, Pali Baveru; just 'beaver [land]'? Yt 5. 29, Yt 5.129 *tąm yazata ažiš .. dahākō baβrōiš paiti daiŋ'haouue*
Baiiana PlN, 'name of a mountain (chain)' BTHL 927
Bardiya OP, PN 'name of a Persian, brother of Cambyses: Smerdis' BTHL 945: short form of a name in *bṛzi-
Bāxtrī OP, Bāxϑī YAv. PlN, 'name of Bactria'; BTHL 953; cf. upa.vāxəϑrika mountains and MW, Persica 1980
Bābiru OP, PlN 'Babylon(ia)' BTHL 954; cf. baβri ; from Semitic bab-el.
Būϑi PN 'name of a Daiva' BTHL 968
Būidižā PN 'name of a Daivī' BTHL 968
$^{+}$Buϑra PN 'name of a believer' BTHL 968
Fratura PN, 'name of a believer' BHTL 981, cf. Ved. tura?
Fraŋrasiian PN 'name of a legendary Turanian king' BHTL 986; MP frāsyāk
Frazdānu PlN ' name of a lake' (in Sistan?) BHTL 1005; MP frazdān, Arm. hrazdān
Frāciia PN 'name of a believer' BHTL 1012
Frā-paiiah PlN 'name of a mountain' BHTL 1016
Frāniia PN, 'name of a believer' BHTL 1016
Frənah PN 'name of a believer' BHTL 1023
Naotara PN, 'descendent of Naotara' BHTL 1037
Naŋhuš-mant PlN 'name of a mountain (chain)' BHTL 1041
Niuuika PN, 'name of a nonbeliever' BTHL 1085
Nisāiia, OP Nisāya PlN, 'name of two different areas' BTHL 1085: one between Merw and Bactria, the other in Medi
Maēna-xan PlN, 'name of a mountain (chain) BTHL 1107; cf. Skt. Mena, name of a river, Menakā;
Maka 'name of a country' BTHL 1109; Gr. Mòkai; – in Gedrosia = W. Baluchistan; Mesopot. Makkan/Magan (mod. Makrān)

Magu OP, 'name of a Median tribe, its priests', BTHL 1111; MP maγūk, NP muγ, mōγ; -- loan in Skt. *magu*, see EWAia III (Sun priests, Saura & Bhaviṣya Pur.,v. Stietencron)

Maxšti PN, 'name of a believer' BTHL 1112;

Maciya PlN 'name of a people' BTHL 1112; Herodotos 4.191 Mòxues; see Maka; for the palatalization see Witzel 1972

Maru OP, PlN 'name of a town in Media' BTHL 1144; cf. Bh 2.6.; Ved. Maru 'desert'

[Mahr-kūša PN 'name of a Daivic being'; sorcerer BTHL 1147; 'destroyer' , from mṛk]

Margu OP, PlN 'name of the country of Margu, Margiana, Merw'; BTHL 1147; NP Marv,Marγ-āb; cf. mṛga, marəγa 'meadow'

[Martiya OP, PN ~name of a Persian' BTHL 1150 = martiia 'human']

Marduniya OP,PN 'name of a Persian, Mardonius' BTHL 1151; from *marduna 'vintner', cf. NP mūl 'wine', Skt. mṛdvīkā 'vine'

Māda OP, PN, 'name of a people, Medes' BTHL 1168

Mazainiia PN, 'name of the Mazana Daivas' BTHL 1169; cf. Mazandarān

Mərəzu 'name of a Daivic being' BTHL 1174

Mūiϑī PN 'name of a Daivī' BTHL 1188

Muraka PN 'name of Daivic beings' BTHL 1189

Muža PlN, 'name of a people' BTHL 1189; – the Muzh area in W. Xinjiang, next to Mt. Muzh Tagh Ata and R. Muzh Kol; cf. also same mountain in N. Kashmir; Ved. maujavant RV, mūjavant AV, Pur. muñjavant

Yautiya OP, PlN 'name of an area in Persia' BTHL 1230; = Herodotos' Outioi ?

Vaēkərəta PlN, 'name of a country' BTHL 1313; cf. Ptolemy: Bagarda on the Paropanisus; cf. Vaikarṇa RV?

Vaēϑaŋha PN 'name of a believer' BTHL 1320

Vaēsaϑa PN, 'name of a believer' BTHL 1328; = vaēsa-ϑa?

Vaϑa-gan PN 'name of a non-believing prince' BTHL 1344

Vanāra PN 'name of a believer' BTHL 1354; cf. Skt. vanāra 'monkey'??

Varəna PlN, 'name of a country' BTHL 1371; cf. Varṇu = Bannu in E. Afgh., and Varnu in N. Hindukush: in Bactr. Doc.s, Sims-Williams, S. Shaked.

Vašan PlN 'name of a mountain range' BTHL 1392

Vāxəϑrikā PlN name of a mountain (range)' BTHL 1408; < *vaxəϑra; note however: Bāxϑī, Baktriš etc. see Witzel 1980

(Vāiti.)gaēsa PlN 'name of a mountain chain' BTHL1409; modern Bādgiš, Bd. Vātgēs; Witzel 1972 'whose (top) has hairs (ruffled) by wind'

Vāriϑkanā PN 'name of a daughter of Vīštāspa' BTHL1412

Vārə-gan PN 'name of a bird' BTHL 1412 ; cf Ved, vāra 'tail hair'?

Vāsī PN 'names of a mythical fish' BTHL 1413; M vātsī? ~ matsya??

Vidarna PN 'name of a Persian', Hudarnēs; BTHL 1443

Viϑβana PlN 'name of a mountain range' BTHL 1445

Vivāna OP, PN 'name of a Persian, Satrap of Darius' BTHL 1452

Viyaxna OP, '12th month' BTHL 1475

Raēmana PlN 'name of a mountain(range) BTHL 1484; < *rayi- 'riches'?

Raoždiia PN 'name of a people' BTHL 1497

Ragi (OP), Raγi, Raji PlN, 'name of a town and area in Media'; BTHL 1497; Gr. Ragai, modern Rai; note however evidence for SE Afghanistan
Raxā OP, PlN, 'name of a town in Persia' BTHL 1497; = Aracha in Ammianus Marcellinus?
Urupi PN 'name of the second Iranian king' BTHL 1532
Uruniiō.vāiϑimiϑka PlN 'a mountain (chain) BTHL 1533
Uruuaaϑā PlN 'name of a river' (in Drangiana) BTHL 1537
Uruuāxšaiia PN 'name of a believer' BTHL 1542; 'der Freude bringende'?
Saokanta, -kənta 'name of a mountain(chain)' BTHL 1550
Saka PN 'name of a people' BTHL 1554; NP sagitān, Gr. Sakastane
Sakā PlN 'name of a country' (Saka land) BTHL 1554
Sairima PN ' name of a people' BTHL 1566; MP Sahmān = 'Arōm' (Eastern Rome) on the upper Tigris, Sauromatians?
Sauruua PN 'name of a demon' = Ved. śarva BTHL 1568; Lub. 304
Sainu PN 'name of a people' BTHL 1570
Sai-mužī PN 'name of a believer' BTHL 1570
Sikaya(h)uvatī OP 'name of a fortress' BTHL 1579
Sīγūire(.ciϑra) 'of Sigurian (origin)' BTHL 1580; cf. Śigru RV?
Suguda PN, PlN 'Sogdian, Sogdia' BTHL 1582; cf. Szemerényi on Scythians
Sku(n)ka OP PN, 'name of a Saka chieftain' BTHL 1588
Skudra OP, PlN 'name of a country' BTHL 1588—cf. Szemerényi, on Scythians
Stipi PN BTHL 1607
Spəngha PN 'name of a believer' BTHL 1619
[Spitii-ura PN 'name of a brother of Yima, who has white kids (sheep)' BTHL 1625]
Spinja ? PN 'name of a tribe' BTHL 1625 ; cf. Spinja-uruška PN 'name of a nonbeliever, enemy of Vīštāspa;
Snaoiia PN 'name of a believer' BTHL 1627
Snāuuiϑka PN 'name of a boastful man, killed by Kərəsāspa' BTHL 1630
Zaini-gu PN 'name of an enemy killed by Fraŋrasiian' BTHL 1660
Zra(n)ka OP PlN 'name of a country, Drangiana' BTHL 1701
Hagmatāna OP., PlN, 'name of a town in Media, Ekbatana' BTHL 1744
Hamankuna PlN 'name of a mountain chain' BTHL 1775
Haraiva OP, Harōiuua PlN, 'name of a country, Aria' BTHL 1787; NP Harē, cf. Ved. Sarayū; S. Shaked 31: hrkyn 'Haraivan'
Haraitī, Harā PlN 'name of a mythical mountain' BTHL 1787
Hara(h)uvatī OP, Harax^{v}aitī PlN, 'name of a country, Arachosia' BTHL 1788; Ved. Sarasvatī; Pahl.Tr. harahmand; however expected: *harax^{v}at; not = mod. Arγandāb; cf. haraxwanya 'from A.', a sort of wine, S. Shaked 46
Harā PlN 'name of a mythical mountain' BTHL 1788, cf. Haraitī
(H)uvara-zmī PlN 'name of a country, Choresmia' BTHL 1855; cf. X^{v}āirizam 1878
X́iiaona PN 'name of a people and country, Chionite (Hun)' BTHL 1858; Yt 9.30; Yt 19.87
X^{v}āiri-zam PlN 'name of a country, Choresmia' BTHL 1878 ; cf. (H)uvārazmī

Abbreviations

Akkad.	Akkadian

AV	Atharvaveda
Avest.	Avestan
BMAC	Bactria-Margiana Archaeological Complex
BTHL	Ch. Bartholomae, *Altiranisches Wörterbuch*
Bur.	Burushaski
Chin.	Chinese
Drav.	Dravidian
EWAia	M. Mayrhofer, *Etymologisches Wörterbuch des Altindoarischen*
IA	Indo-Aryan
IE	Indo-European
IIr.	Indo-Iranian
Khoresm.	Khoresmian
Khot.	Khotanese
MT	*Mother Tongue* (Journal)
NEVP	G. Morgenstierne, A *New Etymological Vocabulary of Pashto*
NIA	New Indo-Aryan
NP	New Persian
OChin.	Old Chinese
OIA	Old Indo-Aryan
O.Ir(an).	Old Iranian
OP	Old Persian
O.Pers(ian)	Old Persian
Parth.	Parthian
PDrav.	Proto-Dravidian
PIE	Proto-Indo-European
P.Kartv.	Proto-Kartvelian
SCA	South Central Asian
Tib.	Tibetan
Toch.	Tocharian
Ved.	Vedic

REFERENCES

Bartholomae, Ch. *Altiranisches Wörterbuch.* Berlin 1904. Reprint 1961.

Becker, C. Zur Problematik früher Pferdenachweise im östlichen Mittelmeergebiet. In: Hänsel, Bernfried and Stefan Zimmer, M.-L. Dunkelman, A. Hintze. *Die Indogermanen und das Pferd. Festschrift für Bernfried Schlerath. Akten des Internationalen interdisziplinären Kolloquiums, Freie Universität Berlin, 1.-3. Juli 1992.* Budapest: Archaeolingua 1994: 145-177.

Beekes, R.S.P. *Comparative Indo-European Linguistics. An introduction.* Amsterdam/Philadelphia: John Benjamins 1995.

Burrow, Th. *The Sanskrit language.* London: Faber and Faber 1955.

Burrow, Th. The Proto-Indoaryans. *Journal of the Royal Asiatic Society of Great Britain and Ireland* 1973, 123-140.

Casal, Jean Marie. *Fouilles de Mundigak.* Vol. 17. C. Klincksieck, 1961.

Costantini, Lorenzo, and Maurizio Tosi. The environment of Southern Sistan in the third millenium BC, and its exploitation by the proto-urban Hilmand civilization. *The Environmental History of the Near and Middle East Since the Last Ice Age.* 1978: 165-183.

Dossiers d'Archeologie, "Jiroft. Fabuleuse Découverte en Iran." Dijon: Editions Faton, Oct. 2003.

Frachetti, M. D. Multiregional Emergence of Mobile Pastoralism and Nonuniform Institutional Complexity across Eurasia. *Current Anthropology* 53, 2012, 2-38.

Francfort, Henri-Paul. L'age du bronze en Asie centrale: La civilisation de l'Oxus. *Anthropology of the Middle East* 4 (2009): 91-111.

Fuller, D. Q. in: 13th Harvard University Round Table. Ethnogenesis of South and Central Asia (ESCA), Kyoto session. Kyoto: Research Institute for Humanity and Nature (RHIN) 2009: 3-11.

Hakemi, Ali. Shahdad: archaeological excavations of a bronze age center in Iran. *IsMEO Vol. 27.* 1997.

Hauptmann, A. and Rehren, T. and Schmitt-Strecker, S. Early Bronze Age copper metallurgy at Shahr-i Sokhta (Iran) reconsidered. In: Stoellner, T. and Koerlin, G., Steffens, G. and Cierny, J, (eds.) *Man and Mining (Mensch und Bergbau).* Bochum: Deutsches Bergbau-Museum 2003: 197 - 213.

Hiebert, F.T. *Origins of the Bronze Age oasis civilization in Central Asia.* Peabody Museum of Archaeology. 2004.

Hintze, A. The Migrations of the Indo-Aryans and the Iranian sound-Change *s* > *h*. W. Meid (ed.) *Akten der Fachtagung der Indogermanischen Gesellschaft in Innsbruck* 1996. Innsbruck 1998.

Hoffmann, K. *Aufsätze zur Indoiranistik.* (ed. J. Narten, vols.1-2) Wiesbaden: Reichert 1975-76.

Kuiper, F.B.J. Rigvedic loan-words. In: O. Spies (ed.) *Studia Indologica. Festschrift für Willibald Kirfel zur Vollendung seines 70. Lebensjahres.* Bonn: Orientalisches Seminar 1955.

Kuiper, F.B. J. The genesis of a linguistic area. Indo-Iranian Journal 10, 1967, 81-102. http://www.springerlink.com/content/tl306hw646806112/fulltext.pdf

Kuiper, F.B.J. Aryans in the Rigveda. Amsterdam-Atlanta: Rodopi, 1991.

Lawler, Andrew. Jiroft discovery stuns archaeologists. *Science* 302.5647, 2003, 973-974.

Litvinsky, B. A., and L. T. P'yankova. Pastoral tribes of the Bronze Age in the Oxus Valley (Bactria). *History of civilizations of Central Asia* 1, 1992: 379-94.

Lubotsky, A. The Indo-Iranian Substratum, in: *Early Contacts between Uralic and Indo-European: Linguistic and Archaeological Considerations*, ed. Chr. Carpelan, A.Parpola, P.Koskikallio. Helsinki, Suomalais-Ugrilainen Seura 2001: 301-317.

Majidzadeh, Yousef. *Jiroft: The earliest Oriental civilization*. Organization of the Ministry of Culture and Islamic Guidance. Tehran 2003.

Madjidzadeh, Yousef. Jiroft tablets and the origin of Linear Elamite writing. In: *Cultural relations between the Indus and the Iranian plateau during the third millennium BCE*, ed. T. Osada and M. Witzel. Cambridge: HOS-OM 7: 211: 219-244.

Majidzadeh, Y. and Holly Pittman. Excavations at Konar Sandal in the region of Jiroft in the Halil Basin: first preliminary report (2002–2008). *Iran: Journal of the British Institute of Persian Studies* 46, 2008, 69.

Mayrhofer, Manfred. *Iranisches Personennamenbuch. Band I. Die Altiranischen Namen.* Wien 1979.

Mayrhofer, Manfred. *Indogermanische Grammatik* Bd. I. Heidelberg: Winter 1986.

Mayrhofer, Manfred. *Etymologisches Wörterbuch des Altindoarischen*. Heidelberg: C. Winter 1986-2001.

Morgenstierne, Georg. *An etymological vocabulary of Pashto.* Oslo: Dybwad 1927.

Morgenstierne, Georg. A *New Etymological Vocabulary of Pashto,* ed. J. Elfenbein, D.N. MacKenzie, N. Sims-Williams. Wiesbaden: Reichert 2003.

Pinault, G. Une nouvelle connexion entre le substrat indo-iranien et le tokharien commun. *Historische Sprachforschung* 116, 2003.

Possehl, Gregory L. The middle Asian interaction sphere. *Expedition* 49, 2007, 40-42.

Salvatori, Sandro. Cultural variability in the Bronze Age Oxus civilisation and its relations with the surrounding regions of central Asia and Iran. *The Bronze Age and early Iron Age in the Margiana lowlands,* 2008: 75-98.

Salvatori, Sandro. Bactria and Margiana seals: A new assessment of their chronological position and a typological survey. *East and West* 50, 2000, 97-145.

Salvatori, Sandro and M.Tosi. Shahr-i Sokhta revised sequence. *South Asian Archaeology.* 2001, 281-292.

Salvatori, Sandro. Cultural variability in the Bronze Age Oxus civilisation and its relations with the surrounding regions of central Asia and Iran. *British Archaeological Reports* 2008: 75-98.

Salvatori, Sandro, Maurizio Tosi, and Barbara Cerasetti. *The Bronze Age and early Iron Age in the Margiana Lowlands: facts and methodological proposals for a redefinition of the research strategies*. Vol. 2. British Archaeological Reports, 2008.

Sarianidi, Viktor I. New Finds in Bactria and Indo-Iranian Connections. Taddei, M. (ed.): *South Asian Archaeology* 2, 1977, 643-59.

Sarianidi, V. I. Margiana in the Bronze Age. *Anthropology & Archeology of Eurasia* 19, 1980, 165-193.

Sarianidi, V. Recent archaeological discoveries and the Aryan problem. *South Asian Archaeology.* 1991: 251-264.

Sarianidi, V. Excavations at southern Gonur. *Iran* 31, 1993, 25-37.

Schmitt, R. Alt-und mittelindoarische Namen. In: *Namensforschung. Name Studies. Les noms propres. Ein internationales Handbuch zur Onomastik. An International Handbook of*

Onomastics. Manuel international d'onomastique, ed. by E. Eichler, G.Hilty, H. L'ffler, H.Steger, L. Zgusta. [1.Teilband] Berlin/New York: de Gruyter 1995: 645-657.

Shaked, Shaul. Le satrape de Bactriane et son gouverneur: Documents araméens du IVe s. avant notre ère provenant de Bactriane. Paris 2004.

Sims-Williams, P. Genetics, Linguistics, and Prehistory: Thinking Big and Thinking Straight. *Antiquity* 72, 1998, 505-27.

Southworth, Franklin C. *Linguistic archaeology of South Asia*. London/New York: Routledge Curzon 2005.

Steinkeller, Piotr. New Light on Marhaši and its contacts with Makkan and Babylonia. *Journal of Magan Studies* 1 (2006): 1-17.

Szemerényi, O. *Introduction to Indo-European linguistics*. Oxford : Clarendon Press / New York : Oxford University Press 1996 [1970].

Szemerényi, O. *Einführung in die vergleichende Sprachwissenschaft.* Darmstadt: Wissenschaftliche Buchgesellschaft 1970.

Thieme, P. Vorzarathustrisches bei den Zarathustriern und bei Zarathustra. *Zeitschrift der Deutschen Morgenländischen Gesellschaft* 107, 1957b, 67-104. [Repr. R. Schmitt (ed.) *Zarathustra* 1968: 204-241.]

Tosi, Maurizio. Excavations at Shahr-i Sokhta, a Chalcolithic Settlement in the Iranian Sīstān. Preliminary Report on the First Campaign, October-December 1967. *East and West* 18, 1968, 9-66.

Vogelsang, W. South East Afghanistan and the Borderlands in the Early Historical Period: Some Further Observations and Suggestions. *Newsletter of Baluchistan Studies 1987*: 47-60.

Wackernagel, Jakob/Debrunner,Albert, *Altindische Grammatik*, 3 vols., Göttingen 1886-1930.

Whitney, W. D. *A Sanskrit Grammar*. Leipzig 1889 (repr. Cambridge Mass. 1973).

Witzel, M. Early Eastern Iran and the Atharvaveda. *Persica* 9, 1980, 86-128.

Witzel, M. Early Sources for South Asian Substrate Languages. *Mother Tongue* (extra number) October 1999. http://www.people.fas.harvard.edu/%7Ewitzel/MT-Substrates.pdf

Witzel, M. The Home of the Aryans. Anusantatyai. Fs. für Johanna Narten zum 70. Geburtstag, ed. A. Hintze & E. Tichy. (Münchener Studien zur Sprachwissenschaft, Beihefte NF 19) Dettelbach: J.H. Roell 2000, 283-338. http://www.people.fas.harvard.edu/%7Ewitzel/AryanHome.pdf

Witzel, M. Linguistic Evidence for Cultural Exchange in Prehistoric Western Central Asia. Philadelphia: Sino-Platonic Papers 129, 2003. http://www.sino-platonic.org/complete/spp129_prehistoric_central_asia_linguistics.pdf

Witzel, M. *The origins of the world's mythologies*. New York: Oxford University Press 2012.

Witzel, M. Iranian Migration. In: *Oxford Handbook of Ancient Iran.* D. Potts (ed.) Oxford: OUP 2013. 422-441.

Witzel, M. Mitanni Indo-Aryan *mazda* and the date of the Ṛgveda. In *The Complex Heritage of Early India. Essays in Memory of R.S. Sharma,* edited by D.N. Jha, New Delhi: Manohar 2014: 73-96.

MOTHER TONGUE
Journal of the Association for the Study of Language in Prehistory • **Issue XX • 2015**
In Memory of Harold Crane Fleming (1926-2015)

What is hidden under the "Uralic-Yukaghir" label?

Ilia Peiros
EHL program, Santa Fe Institute

Part I

It is well known that Uralic and Yukaghir languages share some words. This observation has been explained either as traces of common origin (the Uralic-Yukaghir hypothesis), or as borrowings into Yukaghir from some Uralic daughter-languages, like Samoyedic. In this paper I am examining the origins of these similarities.

A lexicostatistical list of 50 most stable items[1] is given in Appendix I. The percentage of shared words between the languages [2] is summarized in Table I. The table clearly identifies well-known linguistic families: Uralic (Finnish and Selkup), Yukaghir (two languages / dialects), KamChukchic, Altaic (Turkish and Evenki), and Eskaleut (Chaplino, Atkan) (step 1).

Step 2 groups together the Uralic, Yukaghir, and KamChukchic families, but fails to detect any Altaic – Eskaleut relation.

The lack of reliable phonological correspondences undermines this lexicostatistical classification. So far, such correspondences have been established only between Uralic and Altaic as parts of Nostratic.[3] For other languages (Yukaghir, Chukchee, and Nivkh) only the most general correspondences are known. How, for example, should the comparison "NEW": Yukaghir *-ʒər=pəj* and Nivkh *c`uz-* be treated? The semantic match of the two words is perfect, but the correspondences of consonants seem to be irregular; therefore all options (common origin, borrowing, or chance resemblance) are equally acceptable.

Keeping this consideration in mind, one can challenge a possible connection of Uralic to Chukchee, or even Yukaghir. All Uralic words which match to words of these languages, have Nostratic etymologies, while least two Chukchee – Yukaghir matches are found in "Siberian" languages, like Nivkh,[4] but not in the Nostratic database.

Appendix II consists of Yukaghir words with Uralic and/or Altaic reconstructions connected by more or less simple semantic correspondences.[5] 131 out of 145 words have Nostratic etymologies (see Table II).

---

[1] Sergei Starostin has ranked stabilities of items in the Swadesh list from the most stable (N1 'we') to the most unstable (N100 'small') (Starostin 2007, 838).

[2] Three potential Yukaghir –Uralic comparisons have been rejected: **2. TWO**: Yukaghir *_kij=o- two_ is compared with Altaic *_gojV_ 'different, other', rather than Uralic *_kakta_ ~ *_käktä_ 'two'; **18. MOON:** Yukaghir *_kin(i)ʒ-_ 'moon' is compared with Uralic *_koj[ń]e_ 'morning, dawn', which has a Nostratic etymology (NDB282); 28. WATER: Yukaghir *_onʒi:_ 'water' does not belong to a well-known Nostratic word *_wetV_ 'water' (> Uralic *_wete_, etc. NDB58).

[3] The Nostratic or Euroasiatic family, as it is presented in the Nostratic database (NDB) consists of Indo-European, Uralic, Altaic, Dravidian, and Kartvelian; the Afro-Asiatic languages form a sister-branch of Nostratic.

[4] Mudrak has proposed that Yukaghir is related to Nivkh.

Table II

Distribution of Yukaghir comparisons.

1. Yukaghir – Nostratic (including Uralic and Altaic)	77
2. Yukaghir – Nostratic (including Uralic, without Altaic)	16
3. Yukaghir – Uralic (without Nostratic)	9
4. Yukaghir – Nostratic (including Altaic, without Uralic)	38
5. Yukaghir – Altaic (without Nostratic)[6]	6

From my point of view, the distribution of examples suggests that the Yukaghir language is more likely to be related to Uralic as another member of the Nostratic superfamily, and its similarities with the Uralic languages are due to the common Nostratic origin of the two families. Of course one cannot absolutely exclude that some forms were borrowed into Yukaghir from Uralic, Altaic, or even from unknown languages.

Yukaghir – "Siberian" connections and Nostratic – Yukaghir phonological correspondences will be discussed in Part II.

Table I
Lexicostatistical matrix
Step 1

	Fin	Sel	Yuk T	Yuk L	Chu	Ite	Tur	Eve	Esk	Ale	Niv
Finnish	x	47	15	15	19	17	12	17	4	11	4
Selkup	47	x	17	19	17	17	7	17	6	13	9
Yukaghir T	15	17	x	62	16	18	7	8	6	12	10
Yukaghir L	15	19	62	x	20	20	7	8	2	9	8
Chukchee	19	17	16	20	x	56	17	10	12	12	15
Itelmen	17	17	18	20	56	x	11	8	10	16	10
Turkish	12	7	7	7	17	11	x	22	11	9	11
Evenki	17	17	8	8	10	8	22	x	16	10	4
Chaplino	4	6	6	2	12	10	11	16	x	38	10
Atkan	11	13	12	10	12	16	9	10	38	x	13
Nivkh	4	9	10	8	15	10	11	4	10	13	x

---

[5] Recent borrowings, such as from Yakut into Yukaghir are not listed.

[6] Examples with Eskimo counterparts are not included, as they can indicate borrowings.

Step 2

	Fin	Sel	Yuk T	Yuk L	Chu	Ite	Tur	Eve	Esk	Ale	Niv
Finnish	x	47	15	15	19	17	12	17	4	11	4
Selkup	47	x	17	19	17	17	7	17	6	13	9
Yukaghir T	15	17	x	62	16	18	7	8	6	12	10
Yukaghir L	15	19	62	x	20	20	7	8	2	9	8
Chukchee	19	17	16	20	x	56	17	10	12	12	15
Itelmen	17	17	18	20	56	x	11	8	10	16	10
Turkish	12	7	7	7	17	11	x	22	11	9	11
Evenki	17	17	8	8	10	8	22	x	16	10	4
Chaplino	4	6	6	2	12	10	11	16	x	38	10
Atkan	11	13	12	10	12	16	9	10	38	x	13
Nivkh	4	9	10	8	15	10	11	4	10	13	x

Abbreviations

AEB	Altaic database: http://starling.rinet.ru/main.html
Am	Amur dialect of Nivkh
IN	Nikolaeva (2006)
Itl	Itelmen
K	Kolyma dialect of Yukaghir
KCh	Kam-Chukchic
NDB	Nostratic database: http://starling.rinet.ru/main.html
OM	suggested by Mudrak (MS)
Rédei	suggested by Rédei (1999)
Sa	Sakhalin dialect of Nivkh
Tundra	Tundra dialect of Yukaghir
UEW	Uralisches etymologisches Wörterbuch

Literature

Häkkinen, J. 2012. Early contacts between Uralic and Yukaghir. *Suomalais-Ugrilaisen Seuran Toimituksia – Mémoires de la Société Finno-Ougrienne* 264, pp. 91–101. Helsinki: Suomalais-ugrilainen seura.

Luobbal Sámmol Sámmol Ánte (Ante Aikio). 2014. The Uralic-Yukaghir lexical correspondences: genetic inheritance, language contact or chance resemblance? *Finnisch-Ugrische Forschungen* 62, 7 – 76.

Mudrak, O. 2000. *Этимологический словарь чукотско-камчаеских языков.* M., Языки русской культуры.

Mudrak, O. 2011. *Эскимосский этимологикон.* M., Тезаурус.

Mudrak, O. MS. Palaeosiberian etymologies (databases given to me by the compiler).

Nikolaeva, I. 2006. *A Historical Dictionary of Yukaghir.* Berlin/New York: Mouton de Gruyter.

Piispanen, P. 2013. The Uralic-Yukaghiric connection revisited: Sound Correspondences of Geminate Clusters. *Journal de la Société FinnoOugrienne* 94, 165 -197.

Rédei, K. 1999. Zu den uralisch-jukagirischen Sprachkontakten. *Finnisch-ugrische Forschungen* 55, 1–58.

Rédei, Károly (editor). 1986–88. *Uralisches etymologisches Wörterbuch.* Budapest.

Starostin, S. 2007. Определение устойчивости базисной лекскики. In Старостин, С. А. *Труды по языкознанию*. Стр. 827 – 839.

Starostin, S., A. Dybo, and O. Mudrak. (2003). *Etymological Dictionary of the Altaic Languages*. Brill Academic Publishers.

Appendix I
Lexicostatistical list[1]

	Word	Yukaghir T	Yukaghir K	Nivkh (Am)	Finnish	Selqup	Turkish	Evenki	Chukchee	Itelmen	Chaplino	Atkan
1	we	**mit-ul**	**mit**	ńəŋ	**me**	**mē**	**biz**	**bū**	**muri**	**muza**	xwá=ŋ=kuta	**t(x)i=mas**
		a	**a**	b	**a**	**a**	**a**	**a**	**a**	**a**	c	**a**
2	two	kijoń, ki-	ataq	mi-	kaksi	sitte	iki	ǯūr	ŋirɛ-q	kasx	mālʁuk	al=ax
		a	b	c	d	d	e	e	f	d	c	c
3	I	**me=t**	**met**	ńi	**minä**	**man**	**ben**	**bi**	**ɣə=m**	**kǝ̆mma**	xwá=ŋa	ti=ŋ
		a	**a**	b	**a**	**a**	**a**	**a**	**a**	**a**	c	c
4	eye	waŋ-cim	aŋ=ǯə	ńaχ	silmä	saji	göz	ēsa	ɬ(ə)ɬɛ	lo-ŋ	íja	δ=aχ
		a	a	b	c	c	d	e	f	f	g	g
5	thou	**te-**	**tə=t**	c`i	**sinä**	**tan**	sen	si	**ɣə=t**	**kǝ̆zza**	ɬ-pək	**ti-n**
		a	**a**	b	**a**	**a**	b	b	**a**	**a**	d	**a**
6	who	**kin-**	**kin**	aŋ	**kuka**	kut(ɔ)	**kim**	ŋī, nī	**mi=k-**	**k'e**	**kīn**	**kīn**
		a	**a**	c	**a**	**a**	**a**	b	**a**	**a**	**a**	**a**
7	fire	merū	ločil	t`uɣr	tuli	tü	ateš	togo	jən	ximɬx	kənə́q	qiɣn=aχ
		a	b	loan	c	c	loan	c	d	f	e	e
8	tongue	wanər	onōr	hilɣ	kieli	šē	dil	inn	jilə-	ɬčil	ulú	ums=uχ
		a	a	b	c	c	b	e	b	b	b	d
9	stone	qaj=l	**pe:**	**paχ**	kivi	**pü**	taš	ǯolo	wuk=wə-	wa-č	ujaʁak	quɣan=aχ
		a	**b**	**b**	c	**b**	d	d	c	g	e	f
10	name	ki-ri-jəŋ	**ńu:**	q`a	**nimi**	**nim**	ad	gerbī	**nənnə-**	hela-ŋ	atəq	as=aχ
		a	**b**	c	**b**	**b**	e	f	**b**	h	g	g
11	hand	calʒə-ŋ(*)	nugən	təmk	käsi	uti	el	ŋāle	kɛɣə-	xk'i-č	īxa	c=aχ
		a	b	c	d	e	f	f	g	g	h	i
12	what	neməŋ	leme	si-ʒ	mikä	qaj	ne	ēkūn	rɛq-	ʔăŋ=qa	sa-ŋwá	alq=uχ
		a	a	b	c	d	g	d	f	f	g	h
13	die	j=abə-	am	mu-	kuolla	quqo	öl-	bu-	vʔi-	ʔeza-	tuqā=quq	asχa-
		a	a	loan	c	c	d	e	f	i	g	h

---

[1] Finnish and Selkup lists are taken from the Uralic lexicostatistical database prepared by colleagues in Moscow ("The Tower of Babel" Project). The Turkish and Evenki lists are copied from the AED.

	Word	Yukaghir T	Yukaghir K	Nivkh (Am)	Finnish	Selqup	Turkish	Evenki	Chukchee	Itelmen	Chaplino	Atkan
14	heart	soɣə-	šube=ǯə	ŋ=if	sydän	sīče	jürek	mə̂wan	łiŋ	liŋ=č	iχsá=quq	kan=ūχ
		a	a	b	c	c	d	e	f	f	g	h
15	drink	law-	**o:žə**	ra	juoda	ütirqo	ič-	um-	**wici-**	ɣel-kes	məʁ=áquq	tāŋa-
		a	**b**	c	d	loan	e	f	**b**	i	g	h
16	dog	lāmə=ŋ	toukə	qan	koira	kanaŋ	köpek	ŋinaki, ginaki	ʔəttʔə-	qŏsh	qikmíq	ajk=uχ
		a	b	c	d	c	f	c	f	i	g	h
17	louse	pemə	pemə	amrak	täi	unti	bit	kumke	mə=m(ə)l	mil	kumák	hiŋal=aχ
		a	a	b	c	d	e	f	b	b	f	c
18	moon	kinʒə-ŋ	kinǯə	loŋ	kuu	irä	aj	bȇga	jʔí=lɣə-	jeʔa=lɣin	tanqíq	tuɣiδ=aχ
		a	a	b	c	d	e	f	g	g	h	i
19	claw	öʒi=l	oǯi=l	təkń	kynsi	ḳatɔ	tırnak	osī=kta	vɛɣ-	k'uf-k'uf	stuk < *cətu-ʁ-	qaɣal=ʁiχ
		a	a	b	c	c	d	e	f	i	g	h
20	blood	ce:=mə-ŋ	leppul	ŋ=ar	veri	kem	kan	sēkse	mutlə	młim	āwk	ām=ăx
		a	b	c	c	e	f	g	h	h	i	i
21	one	mā=rqa-	irk-	ń(i)-	yksi	ukkir	bir	umūn	(ʔ)ənnɛn	kniŋ	atāsiq	ataqan
		a	a	b	d	e	f	g	h	h (?)	i	i
22	tooth	saĺ=ɣari=ŋ	taodi:	ŋ=əɣs	hammas	tīmi	diš	ikte	rətən	kəp-kəp	xutá	kiɣus=iχ
		a	b	c	loan	d	e	f	g	h	f	c
23	new	**-ʒər=pəj**	iĺĺə	**c`uz-**	uusi	šɛnti	jeni	ōmakta	tur(ji)-	neʔn	nutáʁ=aq	taɣa=δa-
		a	b	**a**	c	loan	d	e	f	h	g	g
24	dry	**sil-nə=j**	**ke:=ĺə**	**ce-**	**kuiva**	tekipi	**kuru**	olgokin	**kər(ɣ)ə-**	**k'izɣi-lah**	kīnʁa-qā	qaka-
		a	**b**	**a**	**b**	c	**b**	d	**b**	**b**	f	g
25	liver	aĺajə	kude=ǯə	t(`)ius	maksa	mīt̯i̯	kara- ǯiɣer	xakin	ponta	ponta-pont	təŋúk	āʁ=iχ
		a	b	c	d	d	loan	f	g	g	g	d
26	eat	lew-	leg	iń-	syö-	ami-	je-	ǯep-	r-u-	no-kes	nəʁáqā	inu-
		a	a	b	c	d	c	c	e	e	b	b
27	tail	**laqil-lā-**	**jaxyl**	**ŋ=əki**	häntä	tal'či	kujruk	irgi	ŋojŋə-n	ŋosx	papə́k	hitx=iχ
		a	**a**	**a**	b	d	c	c	e	e	f	g
28	this	**t=u-ŋ**	**du**	**tə-ʒ**	**tuo**	**ti=na**	bu	er	**ŋu=t-**	**tə'-n**	u-	wa(n)
		a	**a**	**a**	**a**	**a**	c	d	**a**	**a**	b	b
29	hair	moniĺə-	majlə	ŋ=əŋg	hapsi	ōpti	kɨl	ńurikte	kər-wir	k'im-k'im	nujáq	iml=iχ,
		a	a	d	b	b	c	d	c	g	e	f
30	water	law-jə-ŋ	o:ži:	c`aχ	vesi	üt	su	mū	mi=məl	ʔiʔ	məq	tāŋ=aχ

	Word	Yukaghir T	Yukaghir K	Nivkh (Am)	Finnish	Selqup	Turkish	Evenki	Chukchee	Itelmen	Chaplino	Atkan
		a	b	c	d	d	e	g	g	f	g	h
31	nose	**joɣu=l̲**	**joɣu=l**	viɣ	nenä	intäl	burun	oŋokto	**jeqaaq**	**qeqe-ŋ**	qəŋáq	anʁusin
		a	**a**	b	c	d	e	f	**a**	**a**	f	g
32	not	**eĺ**	**öjĺə**	(i)ləɣə-	**ei**	**a-ssa**	-mV(z)	**e-**	**ɛ-**	qaʔm	-nʁitə-,	ul=ux,
		a	**a**	b	**a**	**a**	c	**a**	**a**	e	d	b
33	mouth	**aŋa=ŋ**	**aŋa**	**eŋ=g**	suu	**ɔ̄ŋ**	aɣɨz	amŋa	jəkərɣə-	qesh	qanə́q	aɣilʁa
		a	**a**	**a**	b	**a**	c	d	c	f	e	c
34	full	**poti-**	**abut-**	c`ar-	täysi	tirik	dolu	ǯalum	jərʔ=ə-	t-xnu-	słə́q=ŋalʁi	cχa-
		a	**a**	b	c	d	e	e	b	f	e	b
35	ear	un=əmə-ŋ	unemə	nos-	korva	üŋkilsa	kulak	sê̂n	viłu=	ʔelwe-leŋ	siɣú=n	tu=tus=iχ
		a	a	b	c	d	e	f	g	g	g	b
36	that	**ta-**	**ta-**	a-	**tuo**	**ti**	o	**tar**	ŋáan(en)	nu	āɣ-	hama
		a	**a**	b	**a**	**a**	b	**a**	d	d	b	c
37	bird	nada	nodo	pei=ŋa	lintu	sūrim	kuš	degi	ɣatle	'uńńa-čh	qawāk	saχ
		a	a	b	c	d	e	f	g	i	g	h
38	bone	**amun**	**amun**	ŋäńɣəf	luu	le	kemik	giramna	**ʔə́tt=ʔəm**	**(k)thăm**	nəχqwāq	qaɣn=aχ
		a	**a**	b	c	c	d	e	**a**	**a**	f	f
39	sun	jar=pəjə-ŋ	je-(lõša)	k`eŋ	aurinko	čēli	güneš	siɣūn	tirkə-tir	lač	siqínəq	**aʁaδ=ʁiχ**
		a	a	b	c	d	e	f	g	h	g	**a**
40	smoke	köjriʒə-ŋ	jūl̲, ĺul`	t`uf	savu	purqi	duman	saŋńan	ŋəł-ɣəł	t'i-t'i-m	pujúq	hwaʁ=iχ
		a	b	c	d	e	loan	f	g	c	e	e
41	stand	oɣo-	öɣo-	k`əpr-	seisoa	niŋkiqo	dur-	il-	t=vetła-	t=xzu-kes	nəkə́v=aquq	cucax-
		a	a	b	c	d	e	f	g	i	g	h
42	tree	sāl̲	sāl	tiɣr	puu	pō	aɣač	mō	uttu-ut	ʔuʔ(f)	úqfik	hjāɣ=aχ
		a	**a**	b	c	c	d	e	f	f	g	g
43	ashes	noɣo	čon-	pləŋg	tuhka	šīmi	kül	huleptēn	piŋ	piŋ-piŋ	aʁá	utx=iχ
		a	b	c	loan	d	e	c	f	f	g	h
44	give	tadi-m	kej-	imɣ-	antaa	miqo	ver-	bū-	jəl-	zill-es	tūnaqā	aχ-siχ
		a	b	c	d	c	e	e	f	f	g	h
45	rain	tiwə-ŋ	tibo	ləx	sade	sorimtä	jaɣmur	tigde	muqɛ-	čuf-čuf	słāł=uk	ciχt=aχ
		a	a	b	c	d	e	f	g	h	b	h
46	star	paɣaʒi-d-eku	lerũ	uńɣr	tähti	qišqä	jɨldɨz	ōsīkta	ɛŋɛr	ŋez(z)em	īʁaləqətāq	aŋali
		a	b	c	d	e	f	g	c	c	c (?)	c
47	fish	aĺɣa-ŋ	**ani=l̲**	co	kala	qēli	balɨk	ollo	**ənnɛ**	**ʔə̆ńč**	iqáł=uk	qa=χ

	Word	Yukaghir T	Yukaghir K	Nivkh (Am)	Finnish	Selqup	Turkish	Evenki	Chukchee	Itelmen	Chaplino	Atkan
		a	**b**	c	d	d	e	d	**b**	**b**	d	d
48	neck	ńami=ḻ	jomi=l	q`os	kaula	sōl	bojun	moŋon	(l)ʔitən-	hejte-ŋ	ujáq=uq	uj=uχ
		a	a	b	loan	c	d	d	f	f	g	g
49	breast	īsī	melut	moc	rinta	kili	meme	ukun	lolʔo-	ĺuĺ(ĺ)u-	sajá	maqδ=aχ
		a	b	c	d	e	f	g	h	h	i	j
50	leaf	**pol-(vur)**	**polžiś**	comr	lehti	č́ōpi	japrak	abdanna	wət	**pălla-păl**	quqúŋ=aq	juḻ=iχ
		a	**a**	e	loan	loan	b	c	d	**a**		

Appendix II.
Yukaghir lexicon compared with Uralic and Altaic.

Structure of an entry:

1. Proto-Yukaghir reconstruction (my modification of the form suggested by Nikolaeva and /or Mudrak)[1].
2. Proto-Uralic reconstruction and its distribution in the family. Uralic reconstructions are given according to the Uralic database; it consists mainly of etymologies from the Rédei's Uralic dictionary with additions and comments by Helimskiy and others (UDB).
3. Proto-Altaic reconstruction with it Tungusic reflex followed by the information about the distribution in other daughter families and the reference to Altaic Etymological Database, a slightly modified version of *Etymological Dictionary of the Altaic Languages* (ADB).
4. Proto-Nivkh reconstruction (modified Mudrak's reconstruction).
5. Chukchic form based on the Chukchee-Kamchatkan database prepared by Mudrak and his book (2000). Actual reconstruction belongs to me.
6. Proto-Eskimo taken from the Eskimo database prepared by Mudrak and from his Eskimo book (2011), which contains also many interesting Altaic and Siberian comparisons.
7. Number of Nostratic etymology in the Nostratic Database (NDB) prepared by Sergei Starostin and his colleagues followed by additional references.[2].

All these databases are accessible through "Tower of Babel" project started by Sergei Starostin (http://starling.rinet.ru/).

1. Yukaghir – Nostratic (including Uralic and Altaic)

1.1.
Yukaghir *a=da- *further there*.
Uralic *e- *this.*
Finnic, Volgan, Permic, Ugric, Samoyedic; UEW 67.
Altaic *é (perhaps *a / *e mixed) *that (deictic root).*
Tungusic *e- *this*; Turkic, Mongolian, Korean, Japanese; AEB 2246.
Nivkh *a(j)- *there*.
NDB 189; Rédei: Yuk-Uralic.

1.2.
Yukaghir *aka- *elder brother*.
Uralic *ekä *elder (male) relative.*
Sami, Obic, Samoyedic; UEW 72.
Altaic *āk`V *elder brother.*
Tungusic *akā / *kakā *man; elder brother*;
Turkic, Mongolian; AEB 649.
Nivkh *äkə- *elder brother.*
NDB 64; OM: Yuk-Niv.

1.3.
Yukaghir *al- K *curse; magic*.
Uralic *arpa *prediction, sorcery, lot*.
Finnic, Hungarian; UEW 16.
Altaic *arV *witchcraft, craft*.
Tungusic *ar- *to make, work*; Turkic, Mongolian; AEB 53.
NDB 203.

1.4.
Yukaghir *al T, *a:l K *below, under*.

---

[1] I extensively also use three databases kindly shared with me by Mudrak: Proto-Nivkh, Proto-Yukaghir, and his lexical comparisons between Nivkh and Yukaghir. Oleg's help is greatly appreciated.

[2] Detailed references are given in the quoted databases.

Uralic *ala *space below smth., below*.
Finnic, Volgan, Permic, Ugric, Samoyedic; UEW 6.
Altaic *ale *below, lower*.
Turkic, Korean, Japanese; AEB 25.
Nivkh *al- *behind (postpos.)*.
NDB 409; Rédei: Yuk-Uralic; OM: Niv-Yuk.

1.5.
Yukaghir *aml- *to suck*.
Uralic *ime *to suck*.
Finnic, Ugric; UEW 82.
Altaic *emV (~ *ami) *to suck*.
Turkic, Mongolian; AEB 2551.
Nivkh *am=ra- *to taste.*
NDB 626; OM: Yuk-Niv.

1.6.
Yukaghir *ańli-ci- K; *engənə- T *amply*.
Uralic *enä (also *anV ~ *onV) *big, much*.
Finnic, Volgan, Permic, Obic, Samoyedic; UEW 74.
Altaic *ắni *very*.
Tungusic *ana- *very*; Turkic, Mongolian, Korean; AEB 37.
NDB 1331.

1.7.
Yukaghir *aŋa *mouth.*
Uralic *aŋe *mouth; hole*.
Sami, Volgan, Permic, Ugric, Samoyedic; UEW 11.
Altaic *àŋa *hole, crack, gape*.
Tungusic *aŋa- *to dig; crack, hole*; Turkic, Mongolian, Japanese; AEB 17.
Nivkh *äŋk (Am), *ämx (Sa) *mouth, beak*.
NDB 480; IN: Yuk-Uralic; OM: Niv-Yuk-Alt.

1.8.
Yukaghir *čaɣi=da- K *to land, touch*.
Uralic *takka *to hang, be attached*.
Finnic, Permic, Samoyedic; UEW 507.
Altaic *ti̯ok`e *to touch, reach*.
Turkic, Mongolian; AEB 2199.
Nivkh *toʁ- (Sa) *to touch*.
NDB 579; OM: Yuk-Niv.

1.9. Yukaghir *čAl- *to add, join together*.
Uralic *ćilV *all; whole*.
Volgan, Permic; UEW 613.
Altaic *čālo *full, to fill*.
Tungusic *ǯalu(-m) *full;* Turkic, Mongolian, Korean, Japanese; AEB 229.
Nivkh *c`ar *to fill; full*.
NDB 661; OM: Niv-Yuk-Alt.

1.10.
Yukaghir *čamani: K *salmon, sp*.
Uralic *śampe *sturgeon*.
Finnish, Obic; UEW 462.
Altaic *sámV *a k. of fish*.
Korean, Japanese; AEB 2725.
NDB 1891.

1.11.
Yukaghir *čAmo- *big, large*.
Uralic *temV *full; to fill, stuff*.
Volgan, Permic, Hungarian; UEW 520.
Altaic *t`ámu *to put into, gather*.
Tungusic *tama- *to gather, collect*; Mongolian, Korean, Japanese; AEB 2303.
NDB 844; Rédei: Yuk-Uralic; OM: Yuk-Niv-Alt.

1.12.
Yukaghir *čAŋu *to protect, defend*.
Uralic *čäŋkV *to help*.
Volgan, Hungarian; UEW 56.
Altaic *čaŋgu *gift, loan*.
Tungusic *ǯaŋ(g)- *be in need, straitened; loan, as a loan;* Japanese; AEB 226.
NDB 1684.

1.13.
Yukaghir *čincə *muscle; calf*.
Uralic *se̮ne (*sōne) *vein, sinew*.
Finnic, Volgan, Permic, Ugric, Samoyedic; UEW 441.
Altaic *síŋri sinew.
Tungusic *sire- sinew, thread; Korean, Turkic, Mongolian; AED 2009
NDB 159 (without Altaic); IN: Yuk-Altaic.

1.14.
Yukaghir *čir=č K *to sprinkle*.
Uralic *ćorV-*to flow, drop, overflow.*
Finnic, Ugric, Samoyedic; UEW 40.
Altaic *si̯òri, *si̯ŭŕi, *ši̯ŭŕu *to flow, drip*.
Tungusic *sir- *spring, well; to strain, press out;* Turkic, Mongolian; AEB 2184.
NDB 190.

1.15.
Yukaghir *čoko:- T *completely*.
Uralic *čukkV (*čokkV) *thick*.
Volgan, Permic, Ugric; UEW 62.
Altaic *č`ako *many; be full, enough*.
Tungusic *čak *full;* Turkic, Korean, Japanese; AEB 265.
Nivkh *sək *all*.
NDB 26; OM: Yuk-Niv.

1.16.
Yukaghir *čoŋo- T *pity*.
Uralic *soŋe *to wish, want*.
Finnic, Permic, Obic; UEW 447.
Altaic *saŋe *to envy*.
Tungusic *saŋgu- *to enjoy other people's grief*; Korean, Japanese; AEB 1913.
Nivkh *cań- (Am) *annoyed*.
NDB1564; OM: Yuk-Niv-Alt.

1.17.
Yukaghir *čugun-mə- *corner*.
Uralic *ćukkV- (ćokkV-) *to curve, bend*.
Permic, Ugric; UEW 42.
Altaic *č`ŏk`i *to incline, sink*.
Tungusic *čoK[i]- *to incline, bow;* Turkic, Mongolian, Korean; AEB 329.
NDB 826.

1.18.
Yukaghir *čuŋ- *to think, mind, clever*.
Uralic *śomV-rV *sorrow; be sad, sorry*.
Volgan, Permic, Hungarian; UEW 485.
Altaic *ǯūmo *to think of, remember*.
Tungusic *ǯōm- *to remember;* Mongolian, Japanese; AEB 2633.
NDB 1644.

1.19.
Yukaghir *čupa *narrow*.
Uralic *ćuppa *narrow.*
Finnic, Volgan, Permic, Hungarian; UEW 44.
Altaic *č`i̯ŭp`ì *small, narrow*.
Tungusic *čip[u]- *narrow*; Mongolian, Korean, Japanese; AEB 299.
NDB 1275; IN: Yuk-Uralic.

1.20.
Yukaghir *eče: K *father*.
Uralic *äćä *father*.
Sami, Obic, Samoyedic; UEW 22.
Altaic *ăčV *elder relative, ancestor*.
Tungusic *asī *wife of elder brother;* Turkic, Korean; AEB 55.
Nivkh *ece=x *old man*.
NDB 984; IN: Yuk-Uralic; OM: Yuk-Niv-Alt.

1.21.
Yukaghir *el- *negative marker*.
Uralic *e ~ *ä ~ *a *negative marker*.
Finnic, Volgan, Permic, Obic, Samoyedic; UEW 68.
Altaic *e *not*.
Tungusic *e- not; Mongolian; AEB 407.
NDB 1186; IN: Yuk-Uralic.

1.22.
Yukaghir *em K *mother*.
Uralic *emä *mother, female*.
Finnic, Hungarian, Samoyedic; UEW 74.
Altaic *ĕme *woman, female*.
Tungusic *emV *mother-in-law; female;* Turkic, Mongolian, Korean, Japanese; AEB 428.
Nivkh *əmə=k *mother*.
NDB 1009; IN: Yuk-Uralic; OM: Yuk-Niv-Alt.

1.23.
Yukaghir *eńe: *mother*.
Uralic *ańa *mother-in-law*.
Sami, Volgan, Permic, Ugric, Samoyedic; UEW 10.
Altaic *ĕńa *mother, elder sister*.
Tungusic *eńi- *mother, female*; Turkic, Korean, Japanese; AEB 432.
Nivkh *ańχ *female, wife*.
NDB 1011; IN: Yuk-Uralic; OM: Niv-Yuk-Alt.

1.24.
Yukaghir *epe: *grandmother*.
Uralic *apV *elder female relative; aunt, elder sister*.
Permic, Ugric, Samoyedic; UEW 15.
Altaic *ĕp`a *mother, elder sister, aunt*.
Tungusic *ebke *grandmother, aunt*; Turkic, Mongolian, Japanese; AEB 439.
NDB 1723.

1.25.
Yukaghir *idä- *time, later*.
Uralic *oδe (ōδe) *year*.
Finnic, Permic, Ugric; UEW 335.
Altaic *ōt`e *old*.

Tungusic *(x)ut- *old; earlier, before;* Turkic, Mongolian, Japanese; AEB 1610.
NDB 99.

1.26.
Yukaghir *il- T *reindeer*.
Uralic *ältV *female animal: female deer, horse.*
Sami, Volgan; UEW 609.
Altaic *ĕlV(-k`V) *deer.*
Tungusic *(x)elkēn *wild deer, domestic deer*; Turkic, Mongolian; AEB 425.
Nivkh *olvarak (Am) *deer*.
NDB 628; IN: Yuk-Altaic; OM: Yuk-Niv.

1.27.
Yukaghir *il- *to scold, abuse*.
Uralic *jerV *curse; to swear, to curse.*
Permic, Obic; UEW 97.
Altaic *īru *to be ashamed, shy, hostile*.
Tungusic *ire(n)te- *to be ashamed*; Turkic, Mongolian, Korean, Japanese; AEB 689.
NDB 184; IN: Yuk-Uralic.

1.28.
Yukaghir *ima: K, *an=ima: T *to sit*.
Uralic *amV *to sit*.
Ugric, Samoyedic; UEW 8.
Altaic *ĕma (~-o) *to stay, be left, leave.*
Tungusic *emē-n- *to leave*; Japanese; AEB 427.
NDB 2110; IN: Yuk-Uralic.

1.29.
Yukaghir *isaɣa K *to fall*.
Uralic *ećV- *to fall*.
Permic, Ugric, Samoyedic; UEW 71.
Altaic *uč`o *to fly, fall*.
Tungusic *(x)uča- *to stumble;* Turkic, Japanese; AEB 2484.
NDB 2102.

1.30.
Yukaghir *ke:j- K *dry*.
Uralic *kujwa *dry*.
Finnic, Obic; UEW 196.
Altaic *k`i̯óbarV (~ -i̯u-) *dry*.
Tungusic *(x)ur- *to dry (meat)*; Turkic, Mongolian, Korean, Japanese; AEB 1050.
Nivkh *qaw (Sa) *to dry, wither*.
NDB 1316.

1.31.
Yukaghir *kel- *to come*.
Uralic *kälä *to ford.*
Finnic, Volgan, Permic, Ugric, Samoyedic; UEW 133.
Altaic *gèle *to come; to go*.
Tungusic *gel- *to get hardly on one's way;* Turkic, Mongolian, Korean, Japanese; AEB 945.
Nivkh *ɣə- (Am), *ɣəl- (Sa) *to return, come back.*
NDB 34; IN: Yuk-Uralic; OM: Yuk-Niv-Alt.

1.32.
Yukaghir *kel^{y}i- T *brother-in-law, sister-in-law*.
Uralic *kälV *sister-in-law.*
Finnic, Volgan, Permic, Obic, Samoyedic; UEW 135.
Altaic *kele (~ -i, -o) *daughter-in-law, bride*.
Tungusic *keli *relative-in-law; girl, sister;* Turkic; AEB 755.
NDB 336; IN: Yuk-Uralic.

1.33.
Yukaghir *ker- T *family.*
Uralic : Perm. *kar *settlement*
Altaic *gĕrV *house, house poles*.
Tungusic *gerbe- *to procure poles (for the tent)*; Turkic, Mongolian; AEB 503.
Nivkh *ker- (Am) *summer lodging*.
NDB 1325; OM: Yuk-Niv-Alt.

1.34.
Yukaghir *kimər K *membrane*.
Uralic *kama *scab, peel*.
Finnic, Volgan, Permic, Ugric, Samoyedic; UEW 121.
Altaic *kami *a k. of cloth*.
Tungusic *kam- *to hem a garment; head kerchief;* Turkic, Mongolian; AEB 715.
NDB 1836; IN: Yuk-Ural.

1.35.
Yukaghir *köč- T *to run*.
Uralic *kače- ~ *koče- to run, crawl.
UEW-.
Altaic *k`ačV *to run, drive*.
Tungusic *xasa- *to pursue, drive*; Turkic, Mongolian; AEB 955.
NDB 3.

1.36.
Yukaghir *köδ- K *to scrape*.
Uralic *keskV *to whet, sharpen*.

Komi, Mansi; UEW 151.
Altaic *k`i̯òše *to scrape, shave*.
Tungusic*xuši / *kuši *knife*; Turkic, Mongolian, Japanese; AED 1063.
Nivkh *xez- *to dig.*
NDB 606.

1.37.
Yukaghir *kin-ʒə- *moon*[1].
Uralic *koj[ń]e *morning dawn*.
Finnic, Permic, Ugric, Samoyedic; UEW 167.
Altaic *gi̯òjńu *dawn, daylight.*
Tungusic *giańam *dawn;* Turkic, Mongolian, Korean, Japanese; AED 531.
NDB 170.

1.38.
Yukaghir *kute: K *cover of urasa*.
Uralic *kota *hut, hovel, house.*
Finnic, Volgan, Permic, Ugric; UEW 190.
Altaic *kòt`V ( ~ k`-, -u-) *village, locality*.
Turkic, Mongolian, Korean; AEB 894.
NDB 1026.

1.39.
Yukaghir *kuδə- *to be, stay*.
Uralic *kujV *to lie*.
Volgan, Permic, Obic; UEW 197.
Altaic *kejbe *to lie*.
Tungusic *kebi- *to bow down, lie low*; Mongolian, Korean, Japanese; AEB 750.
NDB 450.

1.40.
Yukaghir *lej- *to remember, know*.
Uralic *älwä *understanding, reason; to understand.*
Finnic, Permic; UEW 609.
Altaic *ăĺi *to know; to listen, hear*.
Tungusic *ala- *1 to tell 2 (caus.) to teach, explain;* Turkic, Mongolian, Korean; AEB 26.
Nivkh *alɣə- *to learn, find out;* *likə (Am) *be powerful (shaman)*.
NDB 647.

1.41.
Yukaghir *lomʒə K *moisture, wet*; *lawjə T *water*.
Uralic *lampe *bog, marsh*.
Finnic, Volgan, Permic, Samoyedic; UEW 235.
Altaic *lāmo *sea, wave*.
Tungusic *lāmu *sea; wave;* Mongolian, Japanese; AEB 1187.
NDB 20.

1.42.
Yukaghir *mal=ʒ K *cloudberry*.
Uralic *moĺV (*moδ́V) *a k. of berry*.
Volgan, Permic, Ugric; UEW 279.
Altaic *mĕlu *a k. of berry*.
Tungusic *m[e]likte *rowan*; Turkic, Mongolian; AEB 1277.
NDB 1461; IN: Yuk-Uralic.

1.43.
Yukaghir *menmə- *to jump*.
Uralic *mene *to go*.
Finnic, Volgan, Permic, Ugric, Samoyed; UEW 272.
Altaic *mĕŋa *to run, trot*.
Tungusic *meŋ- *to hurry; to run around (of a dog)*; Turkic, Mongolian; AEB 1281.
NDB 1451; IN: Yuk-Uralic.

1.44.
Yukaghir *molʸɣi- *joint, knee*.
Uralic *polwe *knee*.
Finnic, Volgan, Samoyedic; UEW 393.
Altaic *bi̯ắĺmi *knee, ankle*.
Tungusic *bialebki *knee cap, knee;* Turkic, Mongolian, Korean, Japanese; AEB 133.
NDB 1863.

1.45.
Yukaghir *mon *to say*.
Uralic *mOnV (*monV) *to say*.
Finnic, Volgan, Hungarian, Samoyed; UEW 290.
Altaic *mana (~-o) *to learn, try*.
Tungusic *man-dū- *to try, strive*; Japanese; AEB 1250.
NDB 132; IN: Yuk-Uralic.

---

[1] This is another possibility to compare this Yukaghir word: Uralic *kuŋe *moon.* Finnic, Volgan, Ugric, Samoyedic. UEW 211. Nivkh *q'eŋ *sun*. Rédei: Yuk-Uralic.

1.46.
Yukaghir *monil T; *manal ~ *majl K *hair*.
Uralic *puna *hair*.
Finnic, Volgan, Ugric; UEW 402.
Altaic *p`úńe *hair; feather*.
Tungusic *puńe- *hair;* Mongolian, Japanese; AEB 1858.
NDB 69.

1.47.
Yukaghir *moŋoj- T *female*.
Uralic *mińä *daughter-in-law, young woman*.
Finnic, Permic, Ugric, Samoyedic; UEW 276.
Altaic *májŋV *go-between*.
Tungusic *maŋa *go-between, matchmaker*; Korean, Japanese; AEB 1240.
NDB 517.

1.48.
Yukaghir *mV- *I; *mi=t we*.
Uralic *mE *I*.
Finnic, Volgan, Permic, Ugric, Samoyedic; UEW 294.
Altaic *bĭ *1st person pronoun*.
Tungusic *bi; *bue, *mü-n- *we*; Turkic, Mongolian, Korean, Japanese; AEB 126.
Nivkh *mi- *we, incl.*
NDB 1436; IN: Yuk-Uralic.

1.49.
Yukaghir *ńelbə- K *to skin, peel*.
Uralic *ńilke (*ńülke) *to skin, depilate*.
Finnic, Volgan, Permic, Obic; UEW 319.
Altaic *ńŏlo (~ -u-) *to pluck, pick out*.
Tungusic *ń[u]l- *to exuviate, fade; naked*; Turkic, Mongolian, Japanese; AEB 1507.
NDB 355; IN: Yuk-Uralic.

1.50.
Yukaghir *nel^{y}i- *to lick*.
Uralic *ńälmä *tongue*.
Sami, Volgan, Ugric; UEW 313.
Altaic *ńǻjla (~ -o) *shoot, sprout; teeth, gills*.
Tungusic *ńal- *groove on upper lip; gums of teeth;* Mongolian, Korean, Japanese; AEB 1521.
NDB 861; IN: Yuk-Uralic.

1.51.
Yukaghir *ńori-l^{y} *swamp, bog*.
Uralic *ńorV *swamp.*
Finnic, Permic, Ugric, Samoyedic; UEW 324.
Altaic *ni̯úŕe *to become wet, soak*.
Tungusic *ń[ü]r- *shallow place;* Turkic, Mongolian, Japanese; AEB 1490.
NDB 54; Rédei: Yuk-Uralic.

1.52.
Yukaghir *ńV- *negation of pronouns*.
Uralic *nV *not*. Ugric; UEW 302.
Altaic *āni *not, negative verb*.
Tungusic *ā(n)- *not*; Turkic, Korean, Japanese; AEB 74.
NDB 1197; IN: Yuk-Uralic; OM: Yuk-Alt.

1.53.
Yukaghir *peč- *to run, trot*.
Uralic *pučV *to run, run away*.
Komi, Mansi; UEW 399.
Altaic *bašo *to run, drive*.
Tungusic *baša- *to drive, urge;* Mongolian, Japanese; AEB 98.
NDB 1775; IN: Yuk-Uralic.

1.54.
Yukaghir *pirV- T *to surround*.
Uralic *pOrkV (*pOrɣV) *to turn, revolve*.
Volgan, Permic, Ugric, Samoyedic; UEW 414.
Altaic *p`i̯áru *to spin, plait, wrap*.
Tungusic *por- *to spin, turn round;* Turkic, Mongolian, Korean; AEB 1779.
Nivkh *p`ir- *turn around*.
NDB 1497; OM: Yuk-Niv-Alt.

1.55.
Yukaghir *po:j T; *pe:j K *cheek*.
Uralic *peljä *ear*.
Sami, Volgan, Permic, Ugric; UEW 370.
Altaic *p`ŭlo *cheek*.
Tungusic *pul- *corner (of mouth); cheek;* Mongolian, Korean, Japanese; AEB 1855.
Nivkh *ävləx *lip.*
NDB 833.

1.56.
Yukaghir *pög- *to run, go after*.
Uralic *pukta *to jump, run.*
Volgan, Ugric, Samoyedic; UEW 402.
Altaic *póki (~ -k`-, -e) *to run, run away*.
Tungusic *pukti- *to run, gallop;* Mongolian; AEB 1669.
Nivkh *peɣo (Am), *peʁo (Sa) *to hurry*.

NDB 2; IN: Yuk-Uralic; OM: Yuk-Niv.

1.57.
Yukaghir *poj- _numerous_.
Uralic *paljV _thick; many_.
Finnic, Volgan, Obic, Samoyedic; UEW 350.
Altaic *p`ŭle (~ -i) _to be left, surplus_.
Tungusic *pule- _to be left, surplus;_ Turkic, Mongolian; AEB 1851.
Nivkh *pil _big_.
NDB 385; IN: Yuk-Uralic.

1.58.
Yukaghir *poj _white_.
Uralic *päjV _white; to gleam_.
Sami, Hungarian; UEW 360.
Altaic *pàjá (~ p`-) _to shine, glitter_.
Tungusic *paja- _to glitter (of snow); blinded by bright light_; Japanese; AEB 1702.
NDB -; IN: Yuk-Uralic.

1.59.
Yukaghir *pu- _to blow_.
Uralic *pušV_to blow_.
Finnic, Permic, Obic, Samoyedic; UEW 409.
Altaic *p`učV (~p-,-o-) _to blow_.
Tungusic *pus- _to blow, blow out (fire); to fan;_ Korean, Japanese; AEB 1841.
Nivkh *fu=v _to blow_.
NDB 136.

1.60.
Yukaghir *pVril- _spark_.
Uralic *porV _to burn_.
Finnic, Permic, Samoyedic; UEW 737.
Altaic *p`òre _fire; to burn_.
Tungusic *puri- / *piri- _to dry (over fire);_ Turkic, Mongolian, Korean, Japanese; AEB 1828.
Nivkh *var- _make a big fire_.
NDB 308; OM: Yuk-Niv.

1.61.
Yukaghir *qa:r, *qar K _hide, skin_.
Uralic *kere _bark_.
Finnic, Volgan, Permic, Ugric; UEW 148.
*kärnä _bark._
Finnic, Volgan, Permic, Ugric; UEW 138.
Altaic *k`éŕà _bark_.
Tungusic *xerekte _skin_; Turkic, Mongolian, Japanese; AEB 996.
Nivkh *keS- _birch bark_.
NDB 209. IN: Yuk-Uralic.

1.62.
Yukaghir *qal- T _skin, bark_.
Uralic *kaĺwV_skin, membrane_.
Finnic, Permic, Ugric; UEW 121.
Altaic *k`ăĺi _napless skin, membrane._
Tungusic *xalukta _membrane, dandruff; birch bark_; Turkic, Mongolian; AEB 963.
NDB 103; IN: Yuk-Uralic.

1.63.
Yukaghir *qaʒi-, *qanʒi- _cold_.
Uralic *konta _cold, frost._
Finnic, Samoyedic; UEW 176.
Altaic *k`i̯ójŋo _cold._
Tungusic *xiŋǖ- _cold; to freeze_ Turkic, Mongolian, Korean, Japanese; AEB 1054.
Nivkh *kəŋ _to freeze_ ? < Tungusic.
NDB 597; IN: Yuk-Uralic; OM: Yuk-Niv-Alt.

1.64.
Yukaghir *qonde:- _reindeer stag_.
Uralic *kunta _wild reindeer._
Sami, Obic; UEW 206.
Altaic *kȅnda _a k. of ungulate animal_.
Tungusic *kēnde _harnessed deer_; Turkic, Mongolian; AEB 785.
NDB 1668.

1.65.
Yukaghir *qV- _interrogative_.
Uralic *ku- ~ ko- _who_.
Finnic, Volgan, Permic, Ugric, Samoyedic; UEW 191.
Altaic *k`a(j) _who, interrogative pronoun_.
Tungusic *xia (*xai) _what, who;_ Turkic, Mongolian, Korean, Japanese; AEB 959.
Nivkh *ja=qa (Am), *jan=qo (Sa) _interrogative_.
NDB 1369; IN: Yuk-Ural; OM: Yuk-Niv-Alt.

1.66.
Yukaghir *säl- _to break_.
Uralic *ćärke- _to break; to ache_.
Finnic, Volgan, Ugric; UEW 32.
Altaic *č`àro _to cut off, tear off_.
Tungusic *čari- _to tear;_ Turkic, Korean, Japanese; AEB 274.

NDB 423.

1.67.
Yukaghir *salɣar- T *tooth*.
Uralic *ćilV-mV *fang (of predators)*.
Sami, Volgan; UEW 613.
Altaic *sīĺa *sharp stick; tooth*.
Tungusic *sila(-bun) *spit*; Turkic, Mongolian, Korean, Japanese; AEB 2097.
NDB 756.

1.68.
Yukaghir *sem- T *shore, beach*.
Uralic *śajmV *low ground (with a pond or brook)*.
Permic, Ugric; UEW 457.
Altaic *š[i̯à]mì *island; forest*.
Tungusic *šumi (~ č-) *foreland, shallow place;* Turkic, Korean, Japanese; AEB 2196.
NDB 1687.

1.69.
Yukaghir *sirqa- K *knife (big)*.
Uralic *ćorkV *a k. of cutting instrument; axe, knife*.
Sami, Permic, Ugric; UEW 39[2].
Altaic *č`ire *to cut, scrape*.
Tungusic *čire- *to scrape off*; Turkic; AEB 322.
NDB 884.

1.70.
Yukaghir *šole *intestine*.
Uralic *śola *intestine*.
Finnic, Volgan, Permic, Obic; UEW 483.
Altaic *si̯ŏlo *some internal organ*.
Tungusic *silu-kta *intestine*; Turkic, Mongolian; AEB 2050.
NDB 195; IN: Yuk-Uralic.

1.71.
Yukaghir *šoq- K *to pile together*.
Uralic *ćukkV-rV *heap, herd*.
Permic, Hungarian; UEW 43.
Altaic *č`ügù *bundle*.
Turkic, Mongolian, Korean, Japanese; AEB 335.
NDB 1827.

1.72.
Yukaghir *ta=di *to give*.
Uralic *toɣe *to bring, give*.
Finnic, Volgan, Ugric, Samoyedic; UEW 529.
Altaic *t`uja *to give, give a feast*.
Tungusic *tuju- *to give; to give a feast;* Turkic, Mongolian; AEB 2452.
NDB 119; IN: Yuk-Uralic.

1.73.
Yukaghir *tə=t *thou*.
Uralic *tE *thou*.
Finnic, Volgan, Permic, Hungarian, Samoyedic; UEW 539.
Altaic *t`i *thou*.
Mongolian; AEB 2365.
NDB 1582; IN: Yuk-Uralic.

1.74.
Yukaghir *tiw- *wing, feather*.
Uralic -.
BF *tīpe *wing*.
Altaic *di̯up`ú *wing, fin*.
Mongolian, Japanese; AEB 2646.
Nivkh *tup=r *feather*.
Chukchic *cupʔa *soft skin of reindeer antlers*.
NDB 1284; OM: Yuk-Niv-Alt.

1.75.
Yukaghir *tu: T *full*.
Uralic *täwi *full*.
Finnic, Ugric UEW -.
Altaic *t`uji *thick*.
Turkic, Mongolian, Japanese; AEB 2454.
NDB 233.

1.76.
Yukaghir *tV *this, that*.
Uralic *tä (~ *te ~ *ti) *this, that*.
Finnic, Volgan, Permic, Ugric, Samoyedic; UEW 513.
Altaic *t`à (*t`è) *that*.
Tungusic *ta- *that*; Turkic, Mongolian Korean, Japanese; AEB 2286.
Nivkh *tV- *this (very close)*.
NDB 1581; IN: Yuk-Uralic; OM: Yuk-Niv-Alt.

---

[2] The identity of medial clusters in Yukaghir and Uralic requires an additional explanation.

1.77.
Yukaghir *kuδu: *sky.*
Uralic *kuńćV ~ *kućV *star.*
Permic, Ugric, Samoyedic; UEW 210.
Altaic *k`ūčV *a k. of star.*
Tungusic *xōsi-kta *star;* Turkic; AEB 115.
NDB 282.

(1.78)
Yukaghir *čilg- *bough* ? < Nivkh.
Uralic *śalkV *pole, stick; tree trunk.*
Finnic, Volgan, Permic, Ugric; UEW 460.
Altaic *salkV *a k. of board, frame.*
Tungusic *salk- *pole, post;* Turkic, Mongolian; AEB 1905.
Nivkh *c`ilx (Am) *pole.*
NDB 750; IN: Yuk-Uralic; OM: Yuk-Niv-Alt.

(1.79)
Yukaghir *ičo: T *to see, look.*
Uralic *wića- *to see; to beware, guard; wait.*
Finnic, Permic, Hungarian; UEW 571.
Altaic *Vbǯo *to see, understand.*
Tungusic *eǯe- *to understand, remember;* Turkic, Mongolian; AEB 445.
NDB 454; IN Yuk-Uralic or Yuk-Tungusic.

(1.80)
Yukaghir *jara- T *grey.*
Uralic *ćerV *grey.*
Permic, Ugric; UEW 36.
Altaic *si̯ājri *white.*
Tungusic *siarū- *lightning, rainbow;* Turkic, Mongolian, Korean, Japanese; AEB 2036.
NDB 294.

(1.81)
Yukaghir *kelni=ʒə- K *worm, caterpillar* ? < Niv.
Uralic *kOlV *insect.*
Permic, Obic, Samoedic; UEW 227.
Altaic *kulV (~ -o-, -ĺ-) *snake, worm.*
Tungusic *kulī-n *worm, snake*; Korean; AEB 913.
Nivkh *kəlaŋa *worm, caterpillar* ? <. *kəl *long.*
NDB 601; IN: Yuk-Uralic; OM: Yuk-Niv.

(1.82)
Yukaghir *köδV- *dirt.*[3]
Uralic *kaćkV *bitter, sour, rotten.*
Obic, Permic; UEW 640.
Altaic *kùši (~ -o-) *to rot.*
Tungusic *kušu *touchwood; dandruff, soot*; Korean, Japanese; AEB 934.
NDB 1835.

(1.83)
Yukaghir *köl=ge:l K *steep bank.*
Uralic *kurV*bushes, thick forest.*
Finnic, Volgan, Permic; UEW 677.
Altaic *k`ori *hill; embankment, boundary.*
Tungusic *xurē *mountain*; Turkic, Mongolian, Korean, Japanese; AEB 1148.
Nivkh *kul *dune, sandhill.*
NDB 237; OM: Yuk-Niv.

(1.84)
Yukaghir *larqu- *root.*
Uralic *särV *vein, sinew, root.*
Volgan, Permic, Ugric; UEW 437.
Altaic *si̯örme *sinew.*
Tungusic *sumu- *sinew;* Mongolian, Korean; AEB 2083.
NDB 158; Rédei: Yuk-Uralic.

(1.85)
Yukaghir *lepe *to smear with mud or clay.*
Uralic: Finnic *lipa, *lipeδa slippery.
Finnic; UEW -.
Altaic *làjp`V *to glue, stick to.*
Tungusic *labgān-, *lipa- *to glue, to smear*; Turkic, Mongolian, Japanese; AED 1210.
NDB 363; IN: Yuk-Tungusic.

(1.86)
Yukaghir *lEpk- *blood.*
Uralic *läppV *spleen.*
Volgan, Permic, Ugric, Samoyedic; UEW 242.
Altaic *li̯ap`V *spleen.*
Tungusic *lipče *spleen*; Turkic, Mongolian; AEB 1208.
NDB 815.

---

[3] The Uralic reflex in this Nostratic comparison might be substituted by the following: Uralic *kuńće ~ *kuće *urine; to urinate.* Finnic, Volgan, Permic, Ugric, Samoyedic; UEW 210.

(1.87)
Yukaghir *ń[iw] *name*.
Uralic *nime *name*.
Finnic, Volgan, Permic, Ugric, Samoyedic; UEW 305.
Altaic *ĺi̯ŏ́mo(ŋa) *name; spell, divination*.
Tungusic *nim-ŋā- *to shamanize;* Turkic, Mongolian, Korean, Japanese; AEB 1213.
NDB 186; IN: Yuk-Uralic.

(1.88)
Yukaghir *niar T *bare patch on fur*; cf. *ńil- K *to lose hair*
Uralic *ńarV *hairless skin*. Permic, Obic; UEW 313.
Altaic *ńi̯àrke *to pinch (hair).*
Tungusic *nirku- *short hair (of deer);* Turkic, Mongolian, Japanese; AED 1472.
NDB 1099; IN: Yuk-Uralic.

(1.89)
Yukaghir *nonu=do: T *egg*.
Uralic *muna *egg; testicle*.
Finnic, Volgan, Permic, Ugric, Samoyedic; UEW 285.
Altaic *nāmo *testicle*.
Tungusic *nāma / *māna (*māŋa) *testicle*; Turkic, Mongolian; AEB 1415.
NDB 1453.

(1.90)
Yukaghir *noq=s *sable*.
Uralic *ńukV-śV *sable, marten*.
Permic, Ugric; UEW 326.
Altaic *ŋi̯āk`u *dog, wolf*.
Tungusic *ŋōKe *sable, wolf;* Turkic, Mongolian, Korean; AEB 1540.
NDB 830; IN: Yuk-Uralic.

(1.91)
Yukaghir *olə K- *to steal*.
Uralic *sala *to hide, steal; thief*.
Finnic, Volgan, Obic, Samoyedic; UEW 430.
Altaic *ǯela *to deceive*.
Tungusic *ǯele- / *ǯelu- *to lie, deceit; secret*; Turkic, Mongolian; AED 2590.
NDB568; IN: Yuk-Uralic.

(1.92)
Yukaghir *puδə- *top.*
Uralic *piδe (~ -kä) *high, long.*
Finnic, Ugric, Samoyedic; UEW 377.
Altaic *bĕ̀dù *thick, large.*
Tungusic *burgu- *fat, thick*; Turkic, Mongolian, Korean, Japanese; AED 179.
NDB 654; IN: Yuk-Uralic.

(1.93)
Yukaghir *qanbo- K *hand, five* ? < Tungusic.
Uralic *komV(rV) *handful*.
Finnic, Volgan, Permic, Samoyedic; UEW 175.
Altaic *kòmpo *fist, wrist*.
Tungusic *komba- *wrist, hand;* Turkic, Mongolian, Japanese; AEB 875.
NDB 1318.

(1.94)
Yukaghir *sira: T *nit* < Tungusic?
Uralic *śajOrV *nits*.
Finnic, Volgan, Permic; UEW 770.
Altaic *si̯ằjrí *nit, louse*.
Tungusic *sire- *louse, helminthes;* Turkic, Mongolian, Korean, Japanese; AEB 1982.
Nivkh *hirk- *body louse*.
NDB 85; IN: Yuk-Tungusic; OM: Yuk-Niv.

(1.95)
Yukaghir *šöj=l K *stone*.
Uralic *śojwa *clay*.
Permic, Samoyedic; UEW 483.
*śawe *clay*.
Finnic, Volgan, Permic, Obic; UEW 468.
Altaic *sípa *clay, to smear.*
Tungusic *siba- *to smear (with clay)*; Turkic, Mongolian, Japanese; AEB 2011.
NDB 371; IN: Yuk-Uralic.

(1.96)
Yukaghir *toδ- K *tooth, bite*.
Uralic *tola *wedge, peg*.
Volgan, Permic; UEW 797.
Altaic *ti̯ūĺu (~ *č-) *wedge, peg*.
Tungusic *ǯul- *wedge;* Turkic; AEB 2250.
NDB 1955.

(1.97)
Yukaghir *al^{y}- *thaw*[4].
Uralic *eĺV *humid, damp, wet*.
Permic, Obic; UEW 73.
Altaic *ire *to melt*.
Tungusic *irū- *to sink; to melt*; Turkic; AEB 2788.
NDB 1513.

2. Yukaghir – Nostratic (including Uralic, without Altaic)

2.1.
Yukaghir *ań- *to speak*.
Uralic *äne *voice, sound*.
Finnic, Permic Hungarian; UEW 25.
NDB 172; IN: Yuk-Uralic.

2.2.
Yukaghir *jälVk *four*.
Uralic *ńeljä (*neljä) *four*.
Finnic, Volgan, Permic, Ugric; UEW 316.
NDB 1120; Rédei: Yuk-Uralic.

2.3.
Yukaghir *jaŋliʒ K *soup*.
Uralic *jamV *gruel, soup*.
Volgan, Samoyedic; UEW 90.
Nivkh *əŋg=aj-(Am) *to cook*.
NDB 1672.

2.4.
Yukaghir *jeŋ *fire*.
Uralic *äŋV *fire; to burn*.
Volgan, Permic, Hungarian; UEW 26.
NDB 302.

2.5.
Yukaghir *li:p K *spade*.
Uralic *lippV *shovel, board*.
Finnic, Volgan; UEW 690.
Nivkh *lup- (Am) *to scoop*.
NDB 374; IN: Yuk-Uralic; OM: Yuk-Niv.

2.6.
Yukaghir *l^{y}e- *to be, exist*.
Uralic *elä- *to live*.
Finnic, Permic, Ugric, Samoyedic; UEW 73.
NDB 43; IN: Yuk-Uralic.

2.7.
Yukaghir *me- *to take*.
Uralic *miɣe *to give; sell*.
Finnic, Volgan, Permic, Obic, Samoyedic; UEW 275.
NDB 846.

2.8.
Yukaghir *meluδ- *chest, breast*.
Uralic *mälke (*mälɣe) *breast*.
Finnic, Volgan, Permic, Ugric; UEW 267.
Cf. Eskimo *mulə, *məluɣ- *nipple, breast*.
NDB 114; IN: Yuk-Uralic.

2.9.
Yukaghir *mi(g)i- *this side, near*.
Uralic *mu *other, this, that*.
Finnic, Volgan, Permic, Ugric; UEW 281.
NDB 1458.

2.10.
Yukaghir *ńiɣ- *to bend*.
Uralic *ńikV *to bend, bow*.
Sami, Samoyedic; UEW 317.
NDB 1477; IN: Yuk-Uralic.

2.11.
Yukaghir *ńum- *to press*.
Uralic *ńoma *to catch, grab*.
Sami, Samoyedic; UEW 322.
NDB129; IN: Yuk-Uralic.

---

[4] Nikolaeva compares the Yukaghir word with Uralic *sula < Nostratic (NDB 51).

2.12.
Yukaghir *ol^{y}- K _to cut leather to make ropes_.
Uralic *wole (*wōle) _to cut, shave._
Finnic, Permic, Obic; UEW 579.
Nivkh *val _to cut_.
NDB 424.

2.13.
Yukaghir *pan- t_o stand; put._
Uralic *pane _to put, place_.
Finnic, Volgan, Permic, Obic, Samoyedic; UEW 353.
NDB 197; IN: Yuk-Uralic.

2.14.
Yukaghir *puδe:- _berry_.
Uralic *pićla _a k. of berry_.
Finnic, Volgan, Permic, Obic; UEW 376.
NDB 1677.

2.15.
Yukaghir *qor=qə- K _winding_.
Uralic *kurV _curved, to curve_.
Permic, Ugric, Samoyedic; UEW 220.
Nivkh *qori _to lean_.
NDB 1848.

2.16.
Yukaghir *waδu: _root_.
Uralic *wačV ~ *wančV _root_.
Volgan, Permic, Samoyedic; UEW 548.
Nivkh *viz=lex _root_.
NDB 1917; IN: Yuk-Uralic; OM: Yuk-Niv.

(2.17)
Yukaghir *čumur T _back._
Uralic *śäŋkV _back, ass._
Mari, Ugric; UEW 472.
NDB 1895.

(2.18)
Yukaghir *jö: _belt._
Uralic *jäje _belt, girdle._
Permic, Samoyedic; UEW 90.
NDB 463; IN: Yuk-Uralic.

(2.19)
Yukaghir *laʒi- _slow_.
Uralic *lońća _soft_.
Sami, Ugric; UEW 250.
NDB 536; IN: Yuk-Uralic.

(2.20)
Yukaghir *noɣə _sand._
Uralic *maɣe _land, earth_.
Finnic, Volgan, Permic, Obic, Samoyedic; UEW 263.
Nivkh *maʁ _sand._
NDB 177.

(2.21)
Yukaghir *qaj=l T _stone_.
Uralic *kiwe _stone._
Finnic, Volgan, Permic, Ugric; UEW 163.
NDB188; IN: Yuk-Uralic.

(2.22)
Yukaghir _*so:loq K ashes, soot._
Uralic *śiδ’ìe (*śüδ’ìe) _charcoal._
Finnic, Volgan, Obic, Samoyedic; UEW 477.
NDB 585.

3. Yukaghir – Uralic (without Nostratic)

3.1
Yukaghir *kö(:)j boy, young man.
Uralic *koj=mV *man, person*.
Permic, Ugric, Samoyedic; UEW 168.
IN: Yuk-Uralic.

3.2
Yukaghir *köNʒə- *worm, larva (on a reindeer)*.
Uralic *kunčV ~ *kučV a k. of worm (in living things).
Volgan, Obic; UEW 205.
IN: Yuk-Uralic.

3.3.
Yukaghir *kuni-l *ten*.
Uralic *küme(-ne) *ten*. Finnic, Volgan; UEW 679.
IN: Yuk-Uralic.

3.4.
Yukaghir *loɣo- T *to wash*.
Uralic *lika to wash. Finnic, Obic; UEW -.
Cf. Chukchic *ilɣət *to wash.*
IN: Yuk-Uralic.

3.5.
Yukaghir *nol- *poplar, willow*.
Uralic *ńulkV *a k. of fir-tree*.
Volgan, Permic, Obic, Samoyedic; UEW 327.
Cf. Eskimo *nəl=ŋu- *birch, poplar*; Chukchic *nəŋce- *poplar*.
IN: Yuk-Uralic.

3.6
Yukaghir *paδ- *to boil, cook*.
Uralic *pišä *to roast, cook*.
Sami, Permic, Obic; UEW 385.

3.7.
Yukaghir *pe: *mountain, rock*.
Uralic *pije *stone, flint*.
Samoyedic; UEW 322.
IN: Yuk-Uralic.

3.8
Yukaghir *qonm- *foot*.
Uralic *kämä *shoe*.
Sami, Volgan, Permic; UEW 650.
Cf. Eskimo *kaməɣ *boot, footwear;* KamChukchic *kam- *foot.*
OM: Yuk-KCh-Esk.

3.9.
Yukaghir *ič- K *penis.*
Uralic *wEćV *penis.*
Ugric; UEW 899.
cf. Eskimo *ucuɣ *penis.*

(3.10)
Yukaghir *kič=il *end, tip*.
Uralic *kaća *end, tip*.
Finnic, Permic, Hungarian; UEW 110.
(Altaic *k`i̯áčo *ends of bow, brace*.
Tungusic *xusu- / *xuse- *cross-bow;* Mongolian, Korean, Japanese; AEB 1037).
(NDB 1373).

(3.11)
Yukaghir *lVw *smoke*.
Uralic *lewlV *breath; soul*.
Finnic, Permic, Ugric; UEW 247.
Rédei: Yuk-Uralic.

(3.12)
Yukaghir *nuŋn- T *to dream.*
Uralic *ńuŋV *to rest.*
Volgan, Ugric; UEW 328.
IN: Yuk-Uralic.

(3.13)
Yukaghir *o: *to scoop.*
Uralic *ama- *to scoop.*
Finnic, Volgan, Obic; UEW 7.
Cf. Chukchic *em- *to scoop.*
IN: Yuk-Uralic.

(3.14)
Yukaghir *ker to *fall down, throw off.*
Uralic *kirke *to fall.*
Saam, Obic; UEW 160.
IN: Yuk-Uralic.

(3.15)
Yukaghir *levəi- *earth, ground.*
Uralic *liwa *sand.*
Finnic, Permic; UEW 250.
NDB 116'

4. **Yukaghir – Nostratic** (including Altaic, without Uralic)

4.1.
Yukaghir *aja:- K *to rejoice.*
Altaic *ăjV *good, fitting.*
Tungusic *aja, *aju- *good; handsome, beautiful;* Turkic, Mongolian; AEB 11.
NDB 2017: IN: Yuk-Tungusic.

4.2.
Yukaghir *al^{Y}- *thaw*[1].
[Uralic *eĺV *humid, damp, wet.*]
Permic, Obic; UEW 73.
Altaic *ire *to melt.*
Tungusic *irū- *to sink; to melt*; Turkic; AEB 2788.
[NDB 1513].

4.3.
Yukaghir *ar=qə- K *near, at, beside.*
Altaic *ằra *back, behind.*
Tungusic *arka- *back*; Turkic, Mongolian, Japanese; AEB 48.
Nivkh *äri *behind.*
NDB 1213.

4.4.
Yukaghir *čaɣil ~ *čoɣul *leg, thigh.*
Altaic *zi̯ŏgtu *thigh, shank.*
Tungusic *sigdi-pu *metatarsus;* Turkic, Mongolian; AEB 2564.
Nivkh *ŋ=äcx *foot, leg.*
NDB 913; OM: Yuk-Niv.

4.5.
Yukaghir *čamək T *lemming.*
Altaic *č`āmro *a k. of small animal.*
Tungusic *čamduk- *mouse, tarbagan*; Turkic, Mongolian; AEB 280.
NDB 663.

---

[1] Nikolaeva compares the Yukaghir word with Uralic *sula < Nostratic (NDB 51).

4.6.
Yukaghir *čuguru- K *chipmunk*.
Altaic *či̯oke *a k. of small animal (squirrel, otter)*.
Tungusic *ǯuku-n *otter*; Turkic, Korean; AEB 243.
NDB 1710; OM: Yuk-Alt.

4.7.
Yukaghir *emi- *dark; night*.
Altaic *āmV *to be quiet; sleep*.
Tungusic *ām- *1 to sleep 2 to be sleepy*; Turkic, Mongolian; AEB 72.
NDB 571; IN: Yuk-Tungusic.

4.8.
Yukaghir *jubu- K *satiated, fed-up*.
Altaic *ebo *enough, big*.
Tungusic *ebi *enough; to be satiated; greedy*; Mongolian, Korean; AEB 317.
NDB 980; OM: Yuk-Alt.

4.9.
Yukaghir *jV=gul *to worry*.
Altaic *gi̯òlo *to be unhappy, endure*.
Tungusic *gil- *to be sad, annoyed, indignant*; Turkic, Mongolian, Japanese; AEB 2655.
NDB 17: OM: Yuk-Alt.

4.10.
Yukaghir *kənd, *ku(n)d- *human being, man*.
Altaic *gentV (~ k-) *male, self*.
Turkic, Mongolian; AEB 498.
NDB 512; IN: Yuk-Altaic.

4.11.
Yukaghir *kerpə- *to sweep*.
[Uralic *kirä *to hew, hit*.
Volgan, Permic; UEW 666.]
Altaic *k`ĭrka *to scrape, file*.
Tungusic *xigdi- *to comb*; Turkic. Mongolian, Korean, Japanese; AEB 1034.
[NDB 535].

4.12.
Yukaghir *kij=o- *two*.
Altaic *gojV *different, other*.
Tungusic *goj / *gia *other*; Mongolian, Japanese; AEB 547.
NDB 1725; OM: Yuk-Alt.

4.13.
Yukaghir *ko:l=ke: T *navel*.
Altaic *k`i̯ūĺnu *navel*.
Tungusic *xulŋu- *navel*; Turkic, Mongolian; AEB 1101.
Nivkh *k'əlm=r *navel*.
NDB 525; OM: Yuk-Niv-Alt.

4.14.
Yukaghir *kuləbəj T *polar fox*.
Altaic *k`i̯ūĺa *sable, squirrel*.
Tungusic *xulu-kī *squirrel*; Turkic, Mongolian; AEB 702.
NDB 702.

4.15.
Yukaghir *ńa:=č *face*.
Altaic *ni̯ā *eye*.
Tungusic *ńia-sa *eye*; Turkic, Mongolian, Korean, Japanese; AEB 1473.
Nivkh *ńu- < *ńi=w *to see, watch*.
NDB 835; OM: Yuk-Niv.

4.16.
Yukaghir *ńe- *summer, year*.
Altaic *āńu *moon; (moon cycle), year*.

Tungusic *ańŋa *year*; Turkic, Mongolian; AEB 78.
Nivkh *ań *year* < ? Tungusic.
NDB 651; OM: Yuk-Niv.

4.17.
Yukaghir *nug- K *to leave*.
Altaic *nĕko *to leave, put aside*.
Tungusic *neku- *to bring; gift*; Korean, Japanese; AEB 1426.
Nivkh *ənx (Sa) *to leave smth* (postpos.).
NDB 718; OM: Yuk-Niv.

4.18.
Yukaghir *ög- T; *eg- K *to look at*.
Altaic *úk`u *to understand, look into*.
Tungusic *oksa- *1 to submerge in thoughts;* Turkic, Mongolian, Japanese; AEB 2503.
NDB 50.

4.19.
Yukaghir *pigə *utensil*.
Altaic *p`ágò (~ p-) *box, vessel*.
Tungusic *paga, -ča, -kī *box, birch vessel, scoop;* Korean, Japanese; AEB 1613.
NDB 1869.

4.20.
Yukaghir *poɣoδ- K *knee*.
Altaic *bi̯ugu *joint*.
Tungusic *bog- *1 cuff, wristband 2 shoulder*; Turkic, Mongolian, Japanese; AEB 161.
Nivkh *pix- *knee*.
NDB 777; OM: Yuk-Niv-Alt.

4.21.
Yukaghir *pure:- T *black paint*.
Altaic *bośA *grey*.
Turkic, Mongolian; AEB 191.
Nivkh *evr=q- *yellow*.
NDB 38; OM: Yuk-Niv.

4.22.
Yukaghir *qA(:)=δi *armpit; cf.* *qaw=ar *T 'hole'*.
Altaic *k`òbàni *armpit*.
Tungusic *xobanī *armpit*; Turkic, Mongolian, Japanese; AEB 1108.
Nivkh *hov=rəɣ (Am) *hole between collarbones*.
NDB 584; OM: Yuk-Niv-Alt.

4.23.
Yukaghir *qilba K *water-plants, moss*.
Altaic *k`ằĺo *reed, a k. of grass*.
Tungusic *xalī- *bog, swamp*; Turkic, Mongolian, Korean; AEB 964.
NDB 694.

4.24.
Yukaghir *qojri T *black*.
Altaic *kàru (~ k`-) *black*.
Turkic, Mongolian, Japanese; AEB 734.
Nivkh *k`ur=ɣur- (Am) *dark-grey*.
NDB 605; OM: Yuk-Niv.

4.25.
Yukaghir *qola: K *ladle*.
Altaic *kaĺpa *a k. of vessel*.
Tungusic *kala-n *1 kettle 2 bag*; Turkic, Mongolian, Japanese; AEB 709.
Nivkh *q`la (Am) *container made of birch bark*.
NDB 629.

4.26.
Yukaghir *qor- K *reindeer (male)*.
Altaic *gúri (~ -o-, -ŕ-, -e) *deer, game*.
Tungusic *gurma- / *gurna- *1 hare 2 squirrel 3 ermine*; Mongolian, Korean; AEB 572.
NDB 1; OM: Yuk-Alt.

4.27.
Yukaghir *qoto- K _hard (wood)_.
Altaic *k`ét`ò _hard_.
Tungusic *(x)etu- _strong, hard_ ; Turkic, Mongolian, Korean ,Japanese; AEB 1020.
Nivkh *keta=v- (Am) _to be compressed_.
NDB 1366; OM: Yuk-Niv-Alt.

4.28.
Yukaghir *qVr=qil K _axe, jack_.
Altaic *gắŕ[à] _sharp edge_.
Tungusic *gara _bough, stick_; Turkic, Korean, Japanese; AEB 483.
Nivkh *keraq _sticks to clean a pipe_.
NDB 578.

4.29.
Yukaghir *ta:=nu- T _to hop_ < *taw=nu.
Altaic *t`ḕbà _to run_.
Tungusic *tēb- _to catch up with; to run in leaps_; Turkic, Mongolian, Japanese; AEB 2354.
NDB 1176.

4.30.
Yukaghir *tim- T _cover for yaranga_.
Altaic *t`āma _wall, roof_.
Tungusic *tamV- _shed, cover (for a hut)_; Turkic, Mongolian, Korean, Japanese; AEB 2323.
Nivkh *tomo _smoke hole_.
NDB 761; OM: Yuk-Niv-Alt.

4.31.
Yukaghir *tina- K _to pull, drag_.
Altaic *t`āno _to stretch, pull_.
Tungusic *tān- _to stretch, pull_; Mongolian, Korean, Japanese; AEB 2324.
NDB 356.

4.32.
Yukaghir *tugo:ń, *cugo:ń T _sharp_.
Altaic *tago _sharp, to cut_.
Tungusic *da(ga)- _sharp; to cut_ ; Turkic, Mongolian; AEB 2200.
Nivkh *t'uń- _sharp_ < ? Yukaghir.
NDB 2045.

4.33.
Yukaghir *waq=cə _blade, sharp side_.
Altaic *bāk`ù _a sharp instrument_.
Tungusic *bāgba stake, bar, spear; Turkic, Mongolian, Japanese; AEB 105.
NDB 1667.

4.34.
Yukaghir *wejl- _wide_.
Altaic *bắŕ[i] _wide, thick_.
Tungusic *baru-n _thick; round, full;_ Turkic, Mongolian, Korean, Japanese; AEB 718.
Nivkh *ver- _wide._
NDB 1229.

4.35
Yukaghir *ikiw- T _afraid_.
Altaic *ĭ́k`è _to be insolent, angry, flamed up._
Tungusic *ikē-1 _to sing; to sing obscene songs, blackguard_; Turkic, Mongolian, Korean, Japanese; AED 681
NDB 321.

4.36.
Yukaghir *čula- _ermine_.
Altaic *t`ule(kV) _fox; wolf_.
Tungusic *tulge _wolf_; Turkic, Japanese; AEB 2460.
Nivkh *t`ləɣi _lynx_.
NDB 608.

4.37.
Yukaghir*kuδ=ʒə *liver.*
Altaic *k`uǯV *part of stomach, bladder.*
Tungusic *xuǯük *urinary bladder; anus*; Mongolian; AED 1154.
NED 808.

4.38.
Yukaghir *mońmu *fist.*
[Uralic *mOrV *handful, palm of hand.*
Permic, Ugric; UEW 872.]
Altaic *mắńa *paw, hand.*
Tungusic *mańa *paw (of an animal);* Turkic; AED 1252.
NED 789.

(4.39)
Yukaghir *ər=ǯ- *middle*.
Altaic *ŏ̀rù *inner side.*
Tungusic *(x)urī- *station, dwelling place*; Turkic, Mongolian, Japanese; AED 1583.
NDB 560; IN: Yuk-Altaic.

(4.40)
Yukaghir *jeloN=ʒV K *sun* ? < Tungusic.
Altaic *dǐ̀lo *year; sun, sun cycle*.
Tungusic *dila=čā *sun;* Turkic, Mongolian, Korean, Japanese; AEB 382.
NDB 549.

(4.41)
Yukaghir *joδ- *to turn, turn back*.
Altaic *oti (~ t`-) *to move, change place*.
Tungusic *(x)utur- *to reel, turn round*; Turkic, Mongolian, Korean, Japanese; AEB 1587.
Nivkh *ot- *move backwards*.
NDB 123; OM: Yuk-Niv.

(4.42)
Yukaghir *ner- T *to grow thin; to faint*.
Altaic *nèra *thin, flat.*
Tungusic *ner- / *nar- *lean, thin, weak*; Turkic, Mongolian, Korean, Japanese; AED 1437.
NDB 1115; IN: Yuk-Tungusic.

(4.43)
Yukaghir *toɣ- *thick, dense*. ? < Nivkh
Altaic *t`ékù *to become thick (of liquids).*
Tungusic *tekti *thick (of liquids)*; Korean, Japanese; AEB 2336.
Nivkh *taɣ- (Sa) *hard, solid*.
NDB 801.

5. Yukaghir – Altaic (without Nostratic)

5.1.
Yukaghir *Amd *quickly, at once*.
Altaic *ămV *quick, timely*.
Tungusic *am- *quick, quickly; to be in time;* Turkic, Mongolian, Korean; AEB 36.
Nivkh *am=zi (Am), *am=r (Sa) *be on time, make on time*.
IN: Yuk-Tungusic; OM: Yuk-Niv.

5.2.
Yukaghir *eɣabə- K *vertebra near the neck.*
Altaic *egmV *shoulder, collarbone.*
Tungusic *emu-ge *collarbone*; Turkic, Mongolian; AED 416.
Nivkh *ŋ=aʁri *shoulder, collarbone*.

5.3.
Yukaghir *eru-l *to turn bad*.

Altaic *ìri (~ *e-) *to rot, pus, be sick.*
Turkic, Mongolian, Japanese; AEB 608.
Nivkh *eru (Am) *to puke*.
OM: Yuk-Niv.

5.4.
Yukaghir *pegi- T *to attack*.
Altaic *bő̆ke *to lie in ambush*.
Tungusic *bokan- to catch up with, take revenge on; Turkic, Mongolian, Japanese; AEB 186; Cf. also *p`ŭgV (~ -k-) *to attack, rob;* AEB 1847.

5.5.
Yukaghir *qa:- T *coals, burned* < *qaw-.
Altaic *k`i̯óp`é *soot, to catch fire*.
Tungusic *xupu-ŋksa *soot*; Turkic, Japanese; AEB 1059.
Nivkh *q'av- *hot, warm*.
Cf. Itelmen *k'wa- *burn*.

(5.6)
Yukaghir *po: K *slave* < ? Chukchee.
Altaic *bat́V *opposite, inimical*.
Tungusic *bargi- *opposite; enemy, inimical*; Turkic, Mongolian; AEB 1785.
Nivkh *verax (Am) *slave*.
Cf. Chukchee púrɛl *slave*.

(5.7)
Yukaghir *ča:l^y- T *dark brown (of a reindeer)* < *čVwVl.
Altaic *č`upa *grey*.
Tungusic *čub-rī- *green, blue, yellow;* Turkic, Mongolian; AEB 338.
Nivkh *c'avr- *grey (as animals)*.
Cf. Chukchee ceváro *grey*.
OM: Yuk-Niv-Chu.

(5.8)
Yukaghir *aɣV *to cut*.
Altaic *ằk`ú *to dig, delve*.
Tungusic *axiri- *to sweep, rake up snow*; Mongolian, Japanese; AED 19.
Nivkh *aq- to cut.
OM: Yuk-Niv

(5.9)
Yukaghir *köδe:l *wolf* ? < Nivkh.
Altaic *k`uŕe (~ -i) *a k. of fur animal*.
Tungusic *xur- *1 bear 2 gopher*; Turkic, Mongolian; AEB 1147.
Nivkh *k'uz=r *wolverine*.
OM: Yuk-Niv.

(5.10)
Yukaghir *ńuŋuj- *to fight*.
Altaic *ŋḗnu to attack, tease.
Tungusic *ŋen- *to attack, fight*; Turkic, Mongolian, Japanese; AED 1534.
IN: Yuk-Tungusic.

MOTHER TONGUE
Journal of the Association for the Study of Language in Prehistory • **Issue XX • 2015**
In Memory of Harold Crane Fleming (1926-2015)

Revisiting the question of Austronesian implosives

Peter Norquest
University of Arizona

In this paper, I ask the question of whether an original contrast between a series of voiced implosive and plain stops can be reconstructed for Proto-Malayo-Polynesian, or if all instances of this contrast are conditioned and ultimately secondary. The secondary development of implosives is examined in the North Sarawak languages, and I suggest that a similar mechanism may account for the development of preglottalized voiced stops and implosives in the Kra-Dai and Austroasiatic phyla. Direct evidence for the preservation of this distinction is then presented for the Western Central Malayo-Polynesian area, and indirect evidence for this distinction is presented for Proto-Oceanic and Nias (Barrier Islands).

1.0 Introduction

The reconstruction of a second series of voiced stops in Austronesian is a topic which has prompted a certain amount of controversy. Prentice (1974) may have been the first scholar to note the distinction between a plain and 'phonetically complex' series of voiced bilabial stops, citing examples from selected languages of North Borneo and Javanese. Blust (1995a, 1997a, 1997b, 1998, 2000, 2001, 2002, 2006, 2007, 2010) has examined this issue in more detail, focusing on the Bornean languages of North Sarawak and (to a lesser extent) Sabah; he argues that this phonetic complexity is secondary, the result of phonetic and prosodic conditioning (Blust 2009: 641-42). Moreover, he argues that the Old Javanese evidence cannot be used to support such a distinction because it is based partly on demonstrable loanwords, and that fortis reflexes in Old Javanese are usually due to borrowing from Malay. The languages examined by Prentice, therefore, do not represent an optimal foundation upon which to examine the issue of a possible fortis/lenis contrast in the voiced stop series of Austronesian.

In order to pose the question of whether or not a fortis/lenis distinction existed at the level of Proto-Malayo-Polynesian, it is important to first take into account cases in which there are plausible alternative explanations. The first goal of this paper is to outline the secondary development of implosives (and other 'fortis' consonants) in certain North Sarawak languages from original intervocalic geminates, and to then propose a similar mechanism via which preglottalized voiced stops and implosives may have arisen – at least in some environments – in the neighboring language phyla of Kra-Dai and Austroasiatic.

After discussing how some instances of a fortis/lenis split can be shown to be secondary, I show how other cases do not appear to be amenable to this kind of explanation. I then open the question of whether or not an implosive series can be established at the level of Western Central Malayo-Polynesian (WCMP). I have chosen a subset of the WCMP languages – all of which have a fortis/lenis distinction in their voiced stop series – as the foundation of this study, and compare them with the Nias language (of the Barrier Islands off the west coast of Sumatra) and Proto-Oceanic (POc), both of which have structurally similar distinctions in their respective phonological inventories. The ultimate question is whether evidence from WCMP, Nias and POc is sufficient to suggest that these distinctions be reconstructed at the level of Proto-Malayo-Polynesian (PMP).

The structure of this paper is the following: section two presents evidence for the secondary origin of a fortis/lenis distinction in Proto-North Sarawak (PNS). Section three examines preglottalized voiced stops and implosives in Kra-Dai, and section four implosives in Austroasiatic. Section five returns to Austronesian, where the phonological context for the fortis/lenis contrast in three key subgroups and languages is presented, and section six examines possible evidence for original implosives in PMP. Section seven concludes.

2.0 Secondary origin of implosives: Proto-North Sarawak

Blust (1995a, 1997a, 1997b, 1998, 2000, 2001, 2002, 2006, 2007, 2010) has treated the languages of northern Borneo in some detail, focusing on the North Sarawak languages in particular and the Sabahan languages to a lesser extent. While a fortis/lenis contrast occurs in both of these families, it only occurs in Proto North Sarawak (PNS) in medial position.

Blust (2006) reconstructs a series of voiced aspirates in Proto-North Sarawak, based on a distinction in the daughter languages between plain/lenited voiced stops and phonetically 'complex' reflexes such as voiced aspirates, implosives and fricates. However, only Kelabit evinces actual voiced aspirates, whereas other languages show other reflexes including implosives, voiceless stops, and voiceless fricatives. Blust suggests that the voiced aspirates have arisen secondarily from consonant gemination resulting from (1) lengthening of consonants after either (a) word-internal or (b) epenthetic initial schwa (which satisfies the requirement for a bisyllabic template), and (2) coalescence of word-internal consonant clusters.

To illustrate the first case, examples of PNS plain medial voiced stops are shown in (1a), and geminate voiced stops following schwa in (1b):

(1) (a)

Gloss	PMP[1]	PNS
ash	*qa**b**u	*a**b**uh
3pl	*(si-)i**d**a	*i**d**ah
rain	*qu**ɟ**an	*u**ɟ**an
digging stick	*tu**ɢ**al	*tu**g**al

(b)

Gloss	PMP	PNS
sugarcane	*tə**b**uh	*tə**b:**uh
faint	*mə**d**an	*mə**d:**an
blink	*kə**ɟ**əp	*kə**ɟ:**əp
sleep	---	*mə**g:**əl

Examples of the second case are given below in (2). In some cases, such as the examples given in (2a), medial stops are also preceded by schwa and the cause of gemination is ambiguous; in others, such as those in (2b), gemination clearly can't be attributed to this:

(2) (a)

Gloss	PMP	PNS
peel off (skin or bark)	*ba**kb**ak	*bə**b:**ak
mouth	*ba**qb**aq	*bə**b:**aʔ
tie by encircling	*bə**ɖb**əɖ	*bə**b:**əd
crush by pounding	*bə**kb**ək	*bə**b:**ək
tamp down earth	*da**kd**ak	*də**d:**ak
darkness	*də**md**əm	*də**d:**əm

---

[1] Please note that traditional PMP phonemes are interpreted in the following way throughout this paper: j = [ɖ], z = [ɟ], g = [ɢ], R = [ʀ], y = [j], and e = [ə].

(b)

Gloss	PMP	PNS
cuckoo	*bu**tb**ut	*bu**b:**ut
pluck, pull out	*bu**tb**ut	*bu**b:**ut
weevil	*bu**kb**uk	*bu**b:**uk
heap, pile	*bu**nb**un	*bu**b:**un
rice porridge	*bu**Rb**uR	*bu**b:**uR

Blust states (p.c.) in regard to the North Sarawak languages that "synchronically nearly all consonants are allophonically geminated after a stressed schwa" and that "voicing is more difficult to main over longer time intervals, and one way to cope with this is by terminal devoicing of voiced geminates. This is exactly what Kelabit /bh/, /dh/ /gh/ are in their phonetic realizations: they start voiced but end voiceless, yet alternate under suffixation with their plain voiced counterparts because suffixes triggered stress shift, removing the condition for gemination in pre-PNS." However, I disagree with his conclusion that "[t]he directionality here is clearly from voiced aspirate to implosive, not the reverse."

I do agree with Blust in reconstructing original gemination as the earliest stage of these medial voiced stops in PNS, which had multiple outcomes in the daughter languages (including both voiced aspirates and implosives) on the basis that (1) if voiced aspirates were to be reconstructed, the devoicing of i.e. b^h would be predicted to result in an aspirated voiceless stop p^h (possibly later reinterpreted as a fricative *f*), not in a plain voiceless stop *p*, and (2) it seems strange that a voiced aspirate would become an implosive, since this would require a reversal of glottal aperture from lax to constricted. I therefore predict the possible trajectories of change for an intervocalic voiced geminate (using the bilabial place of articulation as an example) to be the following:

(1) (a) -b:- > -ʔb- > -ɓ-
(b) -b:- > -bp- > -p-
(c) -b:- > -b^h- (> -p^h- > -f-)

The reflexes of voiced geminates in languages of the four branches of PNS (Blust 2006: 321) are given in Table 1:

Table 1: Reflexes of Proto-North Sarawak voiced geminate stops

PNS	*b:	*d:	*ɟ:	*g:
Bintulu	ɓ	ɗ	ɟ	g
Kenyah				
Kenyah (Long San)	ɓ	ɗ	ʄ	ɠ
Kenyah (Long Wat)	b	d	ɟ	g
Kenyah (Long Dunin)	b/ɓ	d/ɗ	s	ɠ
Kenyah (Long Anap)	p	t	c	k
Kelabitic				
Kelabit (Bario)	b^h	d^h	d^h	g^h
Kelabit (Long Napir)	f	s	s	k
Kelabit (Pa' Mada)	p	t	t	k

PNS	*b:	*d:	*ɟ:	*g:
Kelabit (Tring)	p	c	c	k
Berawan-Lower Baram				
Berawan (Long Terawan)	p	c	c	k
Berawan (Long Jegan)	p	c	c	k
Narum	f	t	c	k
Kiput	s	s	c	k
Miri	f	s	s	k

It is apparent that at least some of these changes were areal in nature, and occurred after the break-up of PNS, since the same kinds of changes happen in languages from different branches. The languages above are regrouped below in table 2 according to the broad direction in which these changes took place:

Table 2: Reflexes of PNS geminate voiced stops by branch

PNS	*b:	*d:	*ɟ:	*g:
Shortening				
Kenyah (Long Wat)	b	d	ɟ	g
Implosion				
Kenyah (Long San)	ɓ	ɗ	ʄ	ɠ
Kenyah (Long Dunin)	ɓ/b	ɗ/d	s	ɠ
Bintulu	ɓ	ɗ	ɟ	g
Aspiration				
Kelabit (Bario)	b^h	d^h	d^h	g^h
Devoicing				
Kelabit (Pa’ Mada)	p	t	t	k
Kenyah (Long Anap)	p	t	c	k
Kelabit (Tring)	p	c	c	k
Berawan (Long Terawan)	p	c	c	k
Berawan (Long Jegan)	p	c	c	k
Devoicing with Frication				
Narum	f	t	c	k
Kiput	s	s	c	k
Kelabit (Long Napir)	f	s	s	k
Miri	f	s	s	k

Prentice (1974) drew attention to the bilabial split in North Sarawak and a similar distinction in two Idahan languages of Sabah: the Kadazan dialect of Coastal Dusun and the Timugon dialect of Lowland Murut. In Sabahan, there is a similar contrast in fortis and lenis reflexes of voiced stops. The difference with PNS is that this distinction occurs in initial position as well as medial position. Focusing on Kadazan, examples of the lenis/fortis split in medial position are given below[2], in which it can be seen that the conditions of the split are the same as those for PNS:

(3) (a)

Gloss	PMP	Kadazan
cloud	*ʀabun	gavun
housepost	*hadiʀi	to-igi
paddy	*paḍaj	paaj
indicate	*tuɟuq	tuuʔ

(b)

Gloss	PMP	Kadazan
stab	*təbək	tobok (< *təb:ək)
hiccough	*sədu	sodu (< *səd:u)
sting, smart	*hapəḍəs	podos (< *pəd:əs)
pinch	*kəɟut	kodut (< *kəd:ut)

Prentice suggests that unexpected fortis reflexes in the Idahan languages may be due to borrowing from Malay, and this seems to be true largely for fortis reflexes occurring in initial position, although there are not always Malay counterparts for all fortis examples. Examples of lenis (4a) and fortis (4b) initial reflexes in Kadazan are given below:

(4) (a)

Gloss	PMP	Kadazan
moon	*bulan	vuhan
branch	*daqan	laan
path	*ɟalan	lahan

(b)

Gloss	PMP	Kadazan
crocodile	*buqaja	buazo
tongue	*dilaq	diha
saliva	*ɟulaq	duha

As a rule, reduplicated forms in Sabahan also have fortis reflexes in initial position where lenis reflexes would be expected:

(5)

Gloss	PMP	Kadazan
smash	*bakbak	babak
fish trap	*bubu	bubu
weevil	*bukbuk	bubuk
rice porridge	*buʀbuʀ	bubur
pour out	*busbus	bubus
k.o. bird	*butbut	bubut

---

[2] Kadazan data have been drawn from Prentice and various publications by Blust, and supplemented by Antonissen (1958).

There do not appear to be any counterexamples in Blust's PNS data to the rule that geminate voiced stops must follow schwa, and there is only one in the Sabahan data to which I have access (Kadazan *tovud* 'spring' < PMP *təbuɖ). It is therefore extremely probable that most, if not all, voiced geminates following schwa in the languages of northern Borneo are of secondary origin. There is, moreover, a small group of counterexamples in which voiced geminates in PNS must be reconstructed following vowels other than schwa. Examples are given below from each of the four main subgroups:

(6) (a)

Gloss	PMP	Bintulu
pinch	*kubit	kuɓit
sit	---	kuɗuʔ
suck, inhale	---	siɗək

(b)

Gloss	PMP	Proto-Kenyah
how	---	*ub:in
sleep	---	*lud:u
brave	---	*kaɟ:aw
point	---	*uɟ:uʔ
quick	---	*sag:it

(c)

Gloss	PMP	Proto-Kelabitic
hand	---	*tid:uʔ
salt	---	*tud:uʔ
behind	*udehi	*ud:ih
nose	*hiɖuŋ	*id:uŋ
spit	*luɟaq	*lid:aʔ

(d)

Gloss	PMP	Proto-Berawan-Lower Baram
pour water on	---	*tub:aʔ
borrow	*hiɟam	*id:am
extremity	*quɟuŋ	*ud:uŋ

It is possible that these represent sporadic innovations within each branch, perhaps conditioned by stress on the final syllable (for example Bintulu *kuɓit* < *kub:ít); if so, more research is required in order to state the possible conditions under which they occurred.

In summary, Blust's explanation for the secondary origin of implosives in the PNS languages appears to be sound in most cases: they developed from original intervocalic geminates which derived from (a) a post-schwa environment and (b) the coalescence of word-internal consonant clusters in reduplicated forms. This explanation can also be extended to the medial fortis series in Sabahan; the initial fortis reflexes, however, remain unexplained.

3.0 Kra-Dai Preglottalized Stops and Implosives

The focus of this section is the Kra-Dai phylum, with an eye toward ascertaining whether some or all of its preglottalized stops (Proto-Be-Tai) and implosives (Proto-Hlai) may have arisen via similar processes as those described above for PNS. I have chosen to focus on the Western Kam-Tai (WKT) branch (Norquest 2015:2), which includes Hlai (Norquest 2015) and Be-Tai (Pittayaporn 2009, Norquest ms), since its historical phonology is the better understood at present than the Kam-Sui and Kra branches. Proto-Hlai and Proto-Be-Tai forms are compared with Revised Austronesian (RAn) forms; for a discussion on the difference between the RAn and traditional PAn consonantal inventories, see Norquest & Downey (2013).

The regular outcome for plain voiced initials in WKT was devoicing. This was true in the case of original monosyllables and forms where the first syllable seems to have been lost at a time prior to devoicing. Note also that the merger of the uvular and velar stops *ɢ and *g in initial and final positions appears to have occurred very early as well. Reflexes are given below, with unattested but expected reflexes in parentheses (Proto-Central Tai and Proto-Southwestern Tai are combined as Proto-Southern Tai):

Table 3: Reflexes of RAn initial voiced stops in Western Kam-Tai

RAn	PHlai	PBe	PNTai	PSTai
*b	*p^{h}	*p	*p	*p
*d	*t^{h}	*t	*t	*t
*ɖ	*tʃ^{h}	(*h)	(hr)	(*t^{h}r)
*ɟ	*tç^{h}	(*c)	(*c)	(*c)
*g	*k^{h}	*k	*k	*k
*ɢ	*k^{h}	*k	*k	*k

Examples are given in (7). When a RAn form is bracketed, it means that it has no Formosan reflexes and the reconstruction is projected from the PMP form:

(7)

Gloss	RAn			PHlai	PBe	PNTai	PSTai
body hair	[*buɭu]	>	*buɭ	---	---	*pul	---
mouth	[*baqbaq]	>	*baq	---	*pa:k	*pa:k	*pa:k
spurt (from mouth)	*buʀəç	>	*buʀ	*p^{h}uɦ	---	---	---
father	*aba	>	*ba	*p^{h}a:ʔ	---	---	---
twine rope	*bəʎbəʎ	>	*bəʎ	*p^{h}ən	---	---	---
chest, liver	*dəbdəb	>	*dəb	---	*t[ə]p	*tap	*tap
two, four	*ɖuça	>	*ɖu	*tʃ^{h}əwʔ	---	---	---
sharp	*ʈaɟəm	>	*ɟəm	*tç^{h}ə:m	---	---	---
eat, feed	*gaɲ	>	*gaɲ	*k^{h}ən	*kən	*kɯɲ	*kin
dirty sweat	*dagi	>	*gi	*k^{h}i:	---	---	---
1sg	*agu	>	*gu	---	---	*ku:	*ku:
hold in fist	*ɢəmɢəm	>	*ɢəm	---	---	*kam	*kam
ribcage	*taɢəʀaŋ	>	*ɢəʀaŋ	*k^{h}a:ŋʔ	---	---	*kʀa:ŋʔ

When compared with the Austronesian evidence, it can be argued that WKT initials which were formerly medials of sesquisyllabic forms were conditioned depending on whether the preceding vowel had been schwa or not, a situation similar to that in PNS discussed above. This was true particularly in Proto-Hlai and Saek, where implosive and preglottalized voiced stops were conditioned by a preceding schwa (these are indicated by the voiceless 'high' register in Saek). Preglottalized stops appeared following all vowels in all other Tai languages. Proto-Be tends to follow this latter pattern as well. Expected but unattested reflexes are placed in parentheses in the tables below:

Table 4: Reflexes of medial voiced stops after non-schwa vowels in WKT

PHlai	PBe	Saek	Other Tai
*C-b > *ʋ	*C-b >*ʔb	*C-b > v^{L}	*C-b > *ʔb

*C-d > *ɾ	*C-d >*ʔr	*C-d > r^{L}	*C-d > *ʔd
*C-ɖ > *ɾ	*C-ɖ >*r	*C-ɖ > tr^{H}	*C-ɖ > *ʔd
*C-ɟ > (*hj)	*C-ɟ >(*ʔj)	*C-ɟ > (j^{L})	*C-ɟ > (*ʔj)
*C-g > *ɦ	*C-g > *g	*C-g >ɣ^{L}	*C-g >*ɣ
*C-ɢ > *ɦ	*C-ɢ > *g	*C-ɢ >ɣ^{L}	*C-ɢ >*ɣ

Table 5: Reflexes of medial voiced stops after schwa in WKT

PHlai	PBe	Saek	Other Tai
*Cəb > *ɓ	*Cəb >*ʔb	*Cəb > b^{H}	*Cəb > *ʔb
*Cəd > *ɗ	*Cəd >*ʔr	*Cəd > d^{H}	*Cəd > *ʔd
*Cəɖ > *ɗ	*Cəɖ >*ʔr	*Cəɖ > d^{H}	*Cəɖ > *ʔd
*Cəɟ > (*tç)	*Cəɟ >(*ʔj)	*Cəɟ > (j^{H})	*Cəɟ > *ʔj
*Cəg > (*k)	*Cəg >(*g)	*Cəg > (ɣ^{L})	*Cəg > (*ɣ)
*Cəɢ > *k	*Cəɢ >(*g)	*Cəɢ > (ɣ^{L})	*Cəɢ > (*ɣ)

In the examples below, when the Saek reflex is either v^{L}, r^{L}, or tr^{H}, *C-b, *C-d or *C-ɖ are reconstructed respectively for Proto-Northern Tai (PNTai). When the Saek reflex is either b^{H} or d^{H}, *ʔb or *ʔd are reconstructed. Examples of medial voiced stops following non-schwa vowels are given in (8), and medial voiced stops following schwa or an indeterminate vowel in (9):

(8)

Gloss	RAn	PHlai	PBe	PNTai	PSTai
shoulder	*qabaʀa	*ʋa:ɦ	*ʔbiaʔ	*C-ba:h	*ʔba:h
poison (fish)	*ʈuba	---	---	*C-bɯə	*ʔbɯə
live, raw	*qudip	*Cuɾi:p	*ʔrjəp	*C-dip	*ʔdip
clay pot, earth	*gudən	*Cuɾən	---	---	---
shrimp	*qudaŋ	*Cuɾa:ŋ	*ruaŋ	---	---
sun, star	*qaɖaw	*ɾa:w	---	*C-ɖa:w	*ʔda:w
how, which	*kuɖa	*ɾa:	*ra:	---	*ʔdaɰ
worm[3]	*quɭəɖ[4]	---	---	*C-ɖɯəl	*ʔdɯən
elbow	*sigu	*Ciɦu:ŋɦ	---	---	---
dirty sweat	*dagi	---	---	*ɣi:	*glaj
1sg	*(a)gu[5]	*ɦu:	---	---	---
thick, viscous	[*bu[g]ət]	---	*gat	---	---
fence, field dike	[*paɢər]	*Ciɦə:n[6]	---	*ɣal	*ɣan

For all Proto-Tai groups excluding Saek, it can be postulated that vowels in the first syllable of a word with final stress were neutralized to schwa, creating the necessary environment for secondary lengthening of voiced stops and subsequent development of preglottalized stops. For example:

---

[3] This form assumes metathesis in either PAn or PTai; the vocalism also implies a low vowel, so that the putative Pre-Tai form would be *quɖaɭ. These two points make this a weaker comparison.

[4] This etymology assumes metathesis in either Proto-Austronesian or Proto-Tai.

[5] Where the Tai protoform indicates *gu, the Proto-Hlai form indicates *agu; there was probably variation between the two depending on context, similar to the variation which occurs in Austronesian.

[6] The first vowels of the Austronesian and Hlai forms don't match; this etymology may be viable if it is assumed that *-ɢər was a root.

*qabaʀa >	*kabaʀə >	*kəb:a:ʀ >	*kəʔba:ʀ >	*ʔba:ɦ	‘shoulder’
*qudip >	*kudip >	*kəd:ip >	*kəʔdip>	*ʔdip	‘live, raw’
*qaɖaw >	*kaɖaw >	*kəd:a:w >	*kəʔda:w >	*ʔda:w	‘star’

There are several Austronesian roots represented in the examples in (9) below. My default assumption is that these were preceded by schwa in the WKT forms:

(9)

Gloss	RAn	PHlai	PBe	PNTai	PSTai
spring, well	[*təbuʀ]	---	---	*ʔbo:h	*ʔbo:h
to block	*-bəŋ	*ɓə:m	---	---	---
(fish) hook	*-bit	---	---	---	*ʔbet
soak	*ədəm	*ɗə:mʔ	---	---	---
small, child	*kədi(k)	*ɗiʔ	---	*ʔdek	*ʔdek
nose, face	*-ɖuŋ	*ɗəŋ	*ʔraŋ	*ʔdaŋ	*ʔdaŋ
borrow	*çəɟam	---	---	---	*ʔjɯ:m
high-pitched sound, whinny	[*əɢik]	*ki:k	---	---	---

There are two etymologies in which the Hlai and Tai evidence conflict with each other (PF = ‘Proto Formosan’):

(10)

Gloss	RAn	PHlai	PBe	PNTai	PSTai
dark, black	[*-dəm]	*ɗəmʔ	*ʔram	*C-dam	*ʔdam
navel (PF)	*puɖa	*Cuɾɯ:	*[d/r]ə:	*ʔdɯə	*ʔdɯə

In the case of ‘dark, black’ the Hlai form was presumably preceded by a schwa whereas the Be-Tai form was not. There is no explanation for the reconstructed implosive in the PNTai form for ‘navel’ unless the Saek form *dua*^{1} on which it depends was borrowed from another Tai language.
There are two forms in which Tai implosives correspond with Austronesian reduplicated forms:

(11)

Gloss	RAn	PNTai	PSTai
butterfly	*baŋbaŋ	*ʔba:ʔ	*ʔbɤ:ʔ
bamboo tube	[*buŋbuŋ][7]	*ʔbaŋh	*ʔbaŋʔ

There are four forms in which Tai *ʔb corresponds with initial *b in Austronesian:

(12)

Gloss	RAn	PHlai	PNTai	PSTai
blind	*buʈa	---	*ʔbo:t	*ʔbo:t

---

[7] For another example in which Austronesian *-uŋ corresponds with Tai *-aŋ (< *-əŋ), see ‘nose’ in (31) above.

flood	[*baçaq]	*ɓa:ɦ	---	*ʔba:h
spotted with white	[*bəlaŋ]	---	*ʔda:ŋh	*ʔbla:ŋh
moon	*buɭaʎ	(*C-ɲa:n)	*ʔblɯən	*ʔblɯən

In the case of 'blind', the Austronesian evidence given in section 6 below supports the reconstruction of an implosive: *ɓuʈa. Two other of the above etymologies, however, are problematic.

In the case of 'flood', a comparison can be drawn with PNS *əb:aʔ 'water', in which PMP *bahaq is reduced to *baq through the loss of medial *-h-, and a schwa is epenthesized at the left edge of the word to maintain a bisyllabic template. This would not completely explain the WKT forms, however, since their final glottal fricatives correspond to the medial *-ç- in *baçaq, not final *-q (the normal WKT reflex of RAn *q is *k). The series of changes which would have resulted in Kra-Dai would therefore have to be the following:

*baçaq > *baç > *əb:aç > *əʔba:h > *ʔba:h

Since Kra-Dai correlations with Austronesian initial syllables are less frequent than those with final syllables, and it is unclear whether there was ever a phonological motivation for initial schwa epenthesis in Kra-Dai (as in the case of PNS), this etymology must remain speculative.

The case of 'moon' is particularly thorny. Besides the fact that the Austronesian evidence points unequivocally to a plain initial (see section 6), there is also the fact that the lateral correspondences are irregular. Ordinarily, RAn *ɭ would be reflected as *-r- in WKT, and the Saek reflex of final *-ʎ would be *-l (yielding PNTai *-l); the expected PNTai form would therefore be *prɯəl, and the PSTai form *p^{h}rɯən. The best explanation for this dilemma is that the laterals underwent metathesis in Kra-Dai. Despite the striking similarity between the two forms, this comparison must therefore remain speculative.

In summary, when there are Austronesian cognates of WKT forms with preglottalized voiced stops and implosives, the evidence suggests that these originated secondarily in the precise environments as has been postulated for PNS in section two above; namely after schwa and in reduplicated forms. However, a handful of problematic forms was given in (12) above in which WKT preglottalized voiced stops and implosives correspond to initial consonants in Austronesian, a position in which neither of these conditions applies.

4.0 Austroasiatic implosives

Given the tendency for secondarily derived preglottalized stops to follow schwa in both Austronesian and Kra-Dai, the question arises as to whether this may be true in Austroasiatic as well. In order to explore this question, a set of Austroasiatic comparisons have been assembled using the lexical database at http://sealang.net/monkhmer/dictionary/.

Since reconstruction of Proto Austroasiatic is an ongoing project, Proto-Mon-Khmer (Shorto) data is cited along with several branch-level reconstructions: Proto-Vietic (Ferlus) and Proto-Bahnaric, Proto-Katuic, Proto-Khmuic, and Proto-Palaungic (all reconstructed by Sidwell). Although many of these comparisons have been suggested elsewhere in the literature, some of them are suggested here for the first time. Not all of them may end up eventually proving valid, but as with the Austronesian-WKT comparisons above, an attempt has been made to control for both semantic and phonological plausibility. When comparing these two phyla, it must be borne in mind that apparent cognacy should first be suspected as resulting from contact between their lower-level branches, as well as the possibility that both may have received loans from Chinese (probable Chinese loans are listed in the footnotes below):

In general, plain voiced stops in Austronesian correlate with the same in Austroasiatic. Examples are given below:

(13)

Gloss	RAn	PMK	PBahn	PKat	PKhm	PPal
hibiscus	*baʀu	*c-ba:r	---	---	---	---
father	*aba	*ʔba:ʔ	*ba:ʔ	---	---	*ba:ʔ
ash	*qabu	*bu[:]h	*bu:h	(*ʔaɓɔh)	*bɔh	---
shoulder	*qabaʀa	*blaʔ	---	---	*blaʔ	---
hole	*lubaŋ	---	---	---	---	*bəŋ
wall	[*diŋdiŋ]	*t_2-di[:]ŋ	---	---	---	*di:ŋ

A similar correspondence exists between voiced stops in Be-Tai[8] and Austroasiatic:

(14)

Gloss	PBe	PT	PMK	PViet	PBahn	PKat	PKhm	PPal
father	---	*bo:h	---	*bɔ:ʔ	---	*ʔmbɔ:	---	---
elder sibling	---	*bi:[ʔ/h]	*mbi:ʔ	---	---	---	---	---
dust	*bə:nʔ	---	---	*bu:lʔ	---	---	---	---
run	*de:w	---	---	---	*dəw	---	*duʔ	(*ɗuʔ)
trough	*duaŋ	---	---	---	*-dɔ:ŋ	---	---	---
candle	---	*dian[9]	---	---	---	*dian	---	---
rope	*da:k	*ɟa:k	---	*ɟa:k	---	---	---	---
bed[10]	---	*ɟo:ŋ[11]	---	*k-ɟə:ŋ	---	---	---	---
help	---	*ɟo:jh	---	---	---	---	*ɟɔ:j	---

There are several examples of Austronesian-Austroasiatic comparisons with implosives in the latter. Note that most of the forms in (15) are preceded by a schwa in RAn:

(15)

Gloss	RAn	PMK	PBahn	PKat	PPal	PMon	PViet
seethe, froth	*səbu	---	*ɓoh	---	*ɓu:s	*k-l-mɓuh	---
sugarcane	*ţəbuç	*(t)ɓu:ʔ	---	---	---	*[t]ɓaw	---
in, at	*di[12]	*ɗi:ʔ	*kɗiʔ	*tɗii	*ɗ(i/e)ʔ	---	---
dark	*-dəm	*ɗə[:]m	---	---	---	---	---
small	*kədit	*kɗi[:]t	---	---	*knɗiət	---	*ɗi:t
head covering	*təduŋ	*tɗu[ə]ŋ	---	---	*ɗɔŋ	---	---

Another group of comparisons includes a group of reduplicated forms in RAn:

(16)

Gloss	RAn	PMK	PBahn	PKat	PKhm	PPal

---

[8] Instead of separating PNT and PST, top-level Proto-Tai reconstructions will be used in this section to conserve space.

[9] Proto-Southern Tai only.

[10] MC 牀 dʑjaŋ (< OC *k.dzraŋ)

[11] Proto-Southern Tai only.

[12] See also PWCMP *ɗi 'at, above' in section 6 below.

lips	*biʀbiʀ	*t$_1$-ɓər	*ɓər	*-ɓɨr	*bə:r	*ɓar
boiling, froth	*bukbuk	*[c]ɓuk	---	---	---	---
rot, weevil	*bukbuk	*(k)ɓuk	*ɓuk~*buk	*ʔaɓuk	---	---
pound	*bukbuk	*[k]ɓok	---	---	---	---
heap, pile up	*bunbun	*ɓu[:]n	---	---	---	---
butterfly	*baŋbaŋ	*ɓa[:]ŋ	---	---	---	---

Austroasiatic implosives also generally correlate with Kra-Dai preglottalized stops and implosives. Without evidence for an original first syllable vowel, there is no way to test the schwa hypothesis in these examples; as above, loans between the two phyla must be suspected in at least some cases:

(17)

Gloss	PHlai	PBe	PT	PMK	PViet	PBahn	PKat	PPal
bamboo slat basket	*ɓuŋ	---	---	---	---	---	---	*ɓəŋ
draw water	*ɓə:k	---	---	*ɓək	---	---	---	*ɓək
grind	---	*ʔbə:n	---	---	*k-ɓən	---	---	---
goat	---	---	*ʔbe:ʔ	*bəɓeʔ	---	(*-bɛ:)	*ʔmɓɛ:ʔ	(*bɛʔ)
flour	---	---	*ʔbɯə	*t$_1$[-l-]ɓo:h	---	---	---	---
wrap up	---	---	*ʔbe:n[13]	---	---	*ɓe:$_1$r	---	---
winnowing basket	*ɗoŋʔ	*ʔro:ŋʔ	*ʔdoŋʔ	---	*ɗo:ŋʔ	*-ɗo:ŋ	*k-ɗoŋ	---
fall down	*ɗəwɦ	---	---	---	---	---	---	*ɗu:h
dry season	---	*ʔriaŋʔ	---	*p-[ɗ]aŋ	---	---	---	---
have	---	*ʔra:jʔ	---	*ɗə[:]j	---	---	---	---
trap	---	---	*ʔdak	*ɗak	---	*ɗak	*ɗak	*ɗak
late at night	---	---	*ʔdɯk	---	---	---	---	---

There is one Austronesian-Austroasiatic form (18) and five WKT-Austroasiatic forms (19) which are in conflict in terms of the expected manner of the initial voiced stop:

(18)

Gloss	RAn	PViet
soak	*ədəm	*dam

(19)

Gloss	PHlai	PBe	PT	PMK	PBahn	PKhm	PPal
copper	*ɗu:ŋ	---	---	*do:ŋ	---	---	*dɔ:ŋ
yellow, orange	*d[ɛ]:ŋ	---	---	---	*d-re:$_2$ŋ	---	---
perch	*tçəwʔ	---	---	---	---	---	*ɟu:h
forest	---	---	*ʔdoŋ	---	---	*do:ŋ	---
fat[14]	---	*vu:j	*bwi:	*[ɟ-]ɓu[:]j	---	---	*k-ɓu:j

Finally, there are two cases, both involving original palatal stops, in which the Hlai and Tai reflexes are at odds:

(20)

---

[13] Proto-Central Tai only.

[14] MC 肥 *bjɨj

Gloss	PHlai	PT	PMK	PBahn	PKhm	PPal
medicine	*hja:	*ʔja:	---	---	*ʔja:	---
grandmother	*tɕɯ:ʔ	*ja:h	*jaʔ	*jaʔ	*jaʔ	*jaʔ

In the case of 'medicine', the Proto-Tai evidence indicates an original preglottalized stop, possibly conditioned by an initial schwa (PTai *Cəɟa: > *ʄa: > *ʔja:), while the Hlai evidence indicates a non-schwa vowel which conditioned lenition of the following stop. The case of 'grandmother' is the reverse situation, in which the Hlai form indicates a preceding schwa (PHlai *Cəɟa:ʔ > *ɟə:ʔ > *tɕɯ:ʔ) whereas the Tai form underwent lenition. In both cases, the Austroasiatic evidence aligns with Tai; 'medicine' is almost certainly a Tai loan into Khmuic, as there are no other Austroasiatic witnesses and Proto-Khmuic has an alternate form *crna₁m which has cognates in other branches of Austroasiatic.

In summary, the weight of the Austroasiatic evidence above supports the hypothesis of a secondary origin of implosives from geminated voiced stops, either after schwa or in a reduplicated form. This is shown primarily via the Austronesian comparisons above which preserve original vowels in bisyllabic forms and which also preserve reduplicated forms; the fact that there is a general correspondence with WKT forms is also suggestive, however.

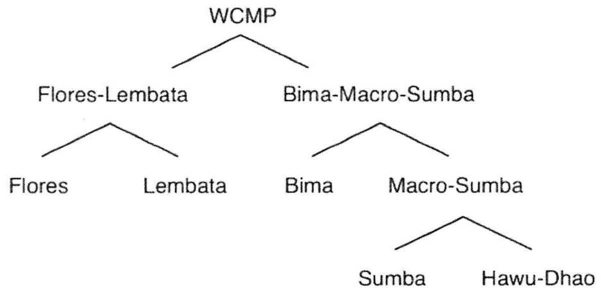
5.0 Description of the fortis/lenis distinction in WCMP, POc, and Nias

Having reviewed the evidence for secondary medial voiced stop gemination in the three phyla above, the question can now be asked as to whether there is any evidence for *original* implosives in Austronesian. This section provides the background on key Austronesian subgroups and languages which bear on this question.

5.1 Implosives in WCMP

The subgrouping for the WCMP subregion provisionally suggested in this paper is the following:

Figure 1: Western Central Malayo-Polynesian phylogeny



I am in agreement with Blust (2008, 2012) that there does not appear to be direct evidence for a Bima-Sumba subgroup, but that a close relationship does exist between Proto-Sumba and Hawu-Dhao; this will be referred to here as the Macro-Sumba (MS) group. The position of

Bimanese is presently unclear. It may be the closest relative of Macro-Sumba within Western Central Malayo-Polynesian (WCMP) based on certain shared lexical innovations such as Bimanese *mami*, PMS *mami 'ripe'; Bimanese *haɓu*, Dhao *abo* 'pound'; Bimanese *male*, Dhao *ka-male* 'withered'; additional research is required before this can be established with any certainty.

Outside of Bimanese, the closest relative of Macro-Sumba appears to be the Flores-Lembata group[15], which subdivides into Proto-Flores and Proto-Lembata[16]. I consider this group (Macro-Sumba, Bimanese, and Flores-Lembata) to comprise Western CMP. Further still are the languages of Timor and the Moluccas (Eastern CMP), which will not be treated in this paper.

Protoforms for Proto-Macro-Sumba (PMS), Proto-Sumba (PS), and Proto-Hawu-Dhao (PHD) groups have been reconstructed based on data collected by Pusat Bahasa and Steve Lansing and supplemented by data from the Austronesian Comparative Dictionary (ACD), Austronesian Basic Vocabulary Database (ABVD) and Blust (2008); additional data used in the reconstruction of Proto-Sumba is taken from Onvlee (1984), and for Hawu-Dhao from Grimes (2008, 2010) and Wijngaarden (1896); Bimanese data has been supplemented with Mansyur *et al* (1985), and Yunus (1981).

Evidence for the implosive consonants *ɓ and *ɗ has been preserved in all WCMP subgroups; there is weaker evidence for a third implosive stop *ʄ. Where etymologies are available, these correspond to PAn voiced stops, contrasting with lenited reflexes which also correspond to PAn voiced stops[17]. Examples of bilabial implosives with PAn pedigrees are the most common, with fewer examples of alveolar and palatal implosives. These two series also contrast with a third series of prenasalized voiced stops, which can often be shown to be of secondary origin (in most cases the coalescence of the prefix *ma- with the following initial).

I reinterpret the phonetic value of original PAn *g as uvular *ɢ. Since it patterns with the implosive series in resisting lenition in languages characterized by the lenition of plain voiced stops, I include it here for completeness. The reflexes of these three series in select WCMP languages are given below:

Table 6: Reflexes of plain, implosive and prenasalized voiced stops in WCMP

PWCMP	Bima[18]	PSumba	Hawu	Dhao
*ɓ	ɓ	*ɓ	ɓ	b~ɓ
*b	w	*β	w	h
*mb	mb	*mb	b	bβ
*ɗ	ɗ	*ɗ	ɗ	d~ɗ
*d	r	*r	r	r
*nd	nd	*nd	d	ɖ
*ʄ	ɗ	*r[19]	ʄ	ʄ

---

[15] The Flores group includes languages such as Lio, Ende, Nage, and Ngadha, all with dialects spread across west and central Flores. The Manggarai group is more distantly related, and Komodo and Palau'e (the latter spoken on the small island of Nitunglea) are its most distant outliers. The Lembata group includes Lamalohot, Lamalera, and Kedang (also split into numerous dialects), as well as the more distantly related Sika.

[16] For now, this must be considered a tentative subgrouping; I hope to explore the Flores-Lembata relationship in a future publication.

[17] This is not strictly true for *ɟ, which will be treated in greater detail below.

[18] Bimanese occasionally has prenasalized forms which correspond to either lenited or implosive forms in other languages; this seems to have been a secondary development in Bimanese after its separation from the Macro-Sumba group.

[19] Proto-Sumba does have forms which are potentially reconstructible to *ʄ, such as *ʄala 'fishing net', *ʄəra 'tired', and *ʄuki 'reach'. Although this would seem a more likely candidate for the reflex of PMS *ʄ,

PWCMP	Bima[18]	PSumba	Hawu	Dhao
*ɟ	r	*r	ʄ	ʄ
*ɲɟ	ɲɟ	*ɲɟ	ɟ	ɟ
*ɢ	g	g	ɠ	ɠ
*g	h	*ɣ	ʔ	ʔ
*ŋg	ŋg	*ŋg	g	g

Note that the velar implosives and at least some palatal implosives in Hawu-Dhao appear to have arisen secondarily on analogy with the original anterior implosives *ɓ and *ɗ. That this is the case is indicated by the fact that Proto-Hawu-Dhao (PHD) *ʄ corresponds to reflexes of both *ɟ and *ʄ (and even *j in the case of 'tree' below) in other languages:

(21)

Gloss	PMP	PWCMP	Bima	PSumba	PHD
tree	*kahiw	*gaju	hadʒu	*ɣaju	*ʔaʄu

In general, lenition of the original plain voiced stops in the WCMP languages appears to have begun early (often after the merger of the palatal with the alveolar series). Although it is tempting to reconstruct the lenition of *b and *d to the level of PWCMP, there is reason to think that this process had not begun until it had already broken up into its highest-order subgroups. One piece of evidence for this is that the formation of secondary prenasalized voiced stops must have occurred before lenition; these merged with the reflexes of implosives in some languages, as the former denasalized and the latter deimploded, respectively:

*b > β > w, h
*ɓ > ɓ > ɓ, b
*N-b, *N-ɓ > mb > mb, b

In nearly all instances, these split reflexes occur in the same cognate sets in each of these languages. Since there are no apparent conditioning factors that could account for this, the question arises of whether a distinction between implosive and plain voiced consonants can be reconstructed for PWCMP, as opposed to deriving it secondarily and independently in each group.

There are occasional (though generally rare) discrepancies in implosive/plain correspondences both between and within subgroups. The majority of cases involve an unexpected lenited reflex where an implosive reflex is expected, although there are also a few cases of the reverse (for example in the case of 'blood', where forms in the Manggarai group of Flores reconstruct to *ɗara (< PMP *daʀaq), even though all other intra- and extra-Flores evidence within WCMP points to *dara). The reason for these occasional discrepancies is unclear.

Blust (2008) lists examples in WCMP languages in which there are apparent doublets with both fortis and lenis reflexes of the same etymon, such as Kambera *wəka* and *ɓəka* 'split'. There may be explanations for some of these; for example, PMS *baba 'below' and *ɓaɓa 'short', both allegedly from PMP *babaq, appear to have originally been distinct forms which have fallen together (due to their semantic proximity) in most Austronesian languages in which *ɓ and *b have merged. A particularly egregious case occurs in the following example:

---

comparison with the other languages indicates that the correct reflex is *r. Blust (2008:56) shows that at least some of the words with *ʄ (such as 'fishing net') are probable borrowings from Malay.

(22)	Bima		PSumba		Hawu		Dhao	
	wali	'again'	---		---		---	
	ɓali	'restore'	*ɓali	'return'	ɓali[20]	'return'	---	
	wari	'reverse'	*βali	'return'	wari	'turn, change'	hari	'again'
	---		---		ɓari	'turn (over)'	---	

There are probably multiple factors at play in this set of etyma. First, there are two potential PMP etymologies from which these may descend: *balik 'reverse, turn around' and *baliw 'return'. Then there is the possibility of either a direct loan or contamination from Malay *balik* 'reverse, return' in one or more of the languages above. The data above suggests the reconstruction of two PWCMP doublets: *bali ~ *ɓali (with an alveolar lateral) and *baɭi ~ *ɓaɭi (with a retroflex lateral), both of which could potentially be derived from either of the PMP etymologies *baliw 'repeat, return' or *balik ~ *bali 'reverse, turn around'.

In order to estimate how common these doublets are in WCMP, Hawu-Dhao and Bimanese were used as case studies to search for additional pairs which alternate between implosive and lenited stem initials. In the case of Hawu-Dhao, only the following were found:

(23)		PHD	Hawu	Dhao	
	(a)	*βəla	wəla	həl[a]	'spread over, extend over'
		*pə-kə-ɓəla	pe-ke-ɓəla	---	'stretched out (on back)'
	(b)	*rəka	---	rəka	'weapon'
		*mə-ɗəka	---	ma-ɗəka	'sharp'
	(c)	*rəŋi	rəŋi	---	'hear'
		*tə-ɗəŋi	---	ta-ɗəŋi	'hear'
	(d)	*pə-lawa	pe-lawa	---	'oppose, protest'
		*pə-laɓa	---	pa-laɓa	'oppose each other'

It may be significant that in the first three of these cases, the variation occurs at the left edge of the root and the form with the implosive reflex is prefixed. Since PHD prefixes can be reconstructed conforming to a template of *Cə- (which fronted to *Ce-* in Hawu and lowered to *Ca-* in Dhao), this post-schwa environment may have created conditions favorable to the development of secondary implosion described in section two above. This would predict the following developments of independent and affixed forms, respectively:

*bəla	>	*βəla	*pə-kə-bəla	>	*pə-kə-bːəla	>	*pə-kə-ɓəla
*dəka	>	*rəka	*mə-dəka	>	*mə-dːəka	>	*mə-ɗəka
*dəŋi	>	*rəŋi	*tə-dəŋi	>	*tə-dːəŋi	>	*tə-ɗəŋi

The last case of alternation between *pə-lawa and *pə-laɓa does not submit to this explanation, however.

There were eight potential cases of root-initial variation identified in Bimanese (24a), and two cases of variation in expressive forms (24b):

(24)	(a)				
		ka-waŋa	'entrance'	ɓaŋa	'big mouth'
		wawo	'top'	(tali-)ɓawo	'attic'
		wira	'spread'	ɓira	'open (adj)'

---

[20] Also Hawu ke-ɓali '(do) again'

	sa-woru	‘grated coconut’	ɓoru	‘shaving’
	reko	‘convolution’	ɗeko	‘to wind’
	rundu	‘encourage’	ɗundu	‘id.’
	ruŋgi	‘sliding’	ɗuŋgi	‘id.’
	rusu	‘stabbed in the top’	ɗusu	‘stab with sharp object’
(b)	wiko-wako	‘irreverent’	ɓiko-ɓako	‘fond of bragging’
	kiri-kora	‘look to and fro in surprise’	kiɗi-koɗa	‘confused’

There do not appear to be obvious Malaysian loan sources for any of these examples. Since all examples except the last one occur at the left edge of the root, the same explanation offered for the Hawu-Dhao examples above (an original *Cə- prefix) may explain these cases as well. There is, at present, no direct evidence for this; however, Bimanese does have another kind of doublet in which the two members are distinguished by presence or absence of prenasalization, indicating the accretion of an original nasal-initial prefix with the implication that Bimanese has undergone a process of general prefix-reduction:

(25)

Base	Gloss	Prefixed	Gloss	Pre-Bima
pula	to close	mpula	closed	(< *pula)
foka	to break	mpoka	broken	(< *fəka)
tiri	straighten	ntiri	straight	(< *tiri)
dolu	egg	ntolu	to spawn	(< *ʈəlu)
coŋge	insert	ncoŋge	stuck	(< *cəŋge)
soɓu	nest	ncoɓu	to nest	(< *səɓu)
giri	squint	taŋgiri	dazzled	(< *ɢiri)
hawi	hook	ŋgawi	to fish	(< *gawi)

The evidence above indicates that, while doublets do exist in the WCMP languages, they are neither very common nor are most of them the result of Malay loans. This weakens the argument that the implosives in these languages can be explained primarily as a result of language contact and borrowing.

5.2 Fortis/lenis series in Oceanic

According to Lynch, Ross & Crowley (2002: 64), the Oceanic subgroup is defined by a set of innovations relative to PMP. While several of these involve ordinary mergers and deletions, there are two that are not obviously the result of regular sound change. The first, a series of contrastive labio-velars ($*p^w$, $*b^w$, $*m^w$) lies outside the scope of this paper. The second, however, involves a distinction between what is known in the literature as ‘oral grade’ and ‘nasal grade’:

Table 7: Oral and nasal grade reflexes in POc

PMP	Oral grade	Nasal grade
*b	*p	*b
*d	*r	*d
*ɟ	*s	*j
*ɢ	*k	*g

Of the above, nasal grade reflexes of words with PMP etymologies are comparatively rare at the palatal and velar places of articulation; those at the bilabial place of articulation, on the other hand, are particularly numerous. Examples are taken from the Austronesian Comparative Dictionary (ACD) (Blust 1995b) or from Ross, Pawley & Osmond (1998) and Lynch, Ross & Crowley (2002).

The terms 'oral grade' and 'nasal grade' have come into use because it can often be shown that the nasal grade consonants are reflexes of medial prenasalized stops. Compare the plain medial stops in (26a) with the prenasalized stops in (26b):

		Gloss	PMP	POc
(26)	(a)	hearth	*da**p**uʀ	*ra**p**uʀ
		to bury	*lə**b**əŋ	*lo**p**oŋ
		stone	*ba**t**u	*pa**t**u
		dark	*ma-ə**d**əm	*ma**r**om

		Gloss	PMP	POc
	(b)	abdomen	*kə**mp**uŋ	*ko**b**uŋ
		sago palm	*ʀa**mb**ia	*ʀa**b**ia
		banana	*pu**nt**i	*pu**d**i
		wet season	*rə**nd**əŋ	*ro**d**oŋ

However, as stated by the authors (ibid: 65), "Where [nasal grade reflexes] occurred word-initially *they were the outcome of a pre-POc innovation which is unpredictable and whose cause(s) unknown.*" I suggest that in the cases where nasal grade reflexes cannot be shown to reflect an original prenasalized stop, they may instead be the reflex of an original implosive. For example, it is proposed here that items such as those in (27a) had original plain voiced stops, but those in (27b) had original implosive stops in Pre-Oceanic:

		Gloss	PMP	Pre-Oc	POc
(27)	(a)	fish trap	***b**ubu	***b**ubu	***p**upu
		crack	***b**ətak	***b**otak	***p**otak
		leaf	***d**ahun	***d**ahun	***r**aun
		thorn	***d**uʀi	***d**uʀi	***r**uʀi

		Gloss	PMP	Pre-Oc	POc
	(b)	blind	***b**uta	***ɓ**uta	***b**uta
		night	***b**əʀŋi	***ɓ**oŋi	***b**oŋi
		blood	***d**aʀaq	***ɗ**aʀaq	***d**aʀaq
		with	***d**əŋan	***ɗ**oŋan	***d**oŋan

5.3 Nias

There are several distinctions which occur in Nias in word-initial position. These have gone unrecognized in the past because they depend on the phrasal environment. Lase (2011: xxiv-xxv) describes these as "initial mutations", where the initial of a word undergoes a change when the word is in the middle or at the end of the sentence (i.e. in interphrasal position). It is not true for all lexical items, however, and it is our assumption that this environment preserves original alternations lost in other environments. The initial mutations that can occur in Nias are the following:

(28) [f] > [β] [b] > [mb] [s] > [z] [ʔ] > [n]
[t] > [d] [d] > [ndr] [k] > [g] [ʔ] > [g]

The initial mutations relevant to this paper are those that involve the voiced stops. The initials *mb* and *ndr* also occur independently in word-initial position, and contrast with the 'mutating' initials above. Examples of non-mutating, mutating, and prenasalized initials are given below:

(29) (a) Non-Mutating

baxa	[**b**axa]	'inside'
dəhə	[**d**əhə]	'recover'

(b) Mutating

baho	[**mb**aho]	'ravine'
dela	[**ndr**ela]	'bridge'

(c) Prenasalized

mbadu	'breath'
ndrohu	'sober'

I propose that the diachronic sources of these three categories of initials are as shown below:

(30)

Non-Mutating	Mutating	Prenasalized
*ɓ > [b]	*b > [mb]	*mb > mb
*ɗ > [d]	*d > [ndr]	*nd > ndr

A three-way contrast also occurs in word-medial position, but in this case the primary contrast is between fortis, lenis and prenasalized voiced stops:

(31) (a) Fortis

ta**b**a	'slice, piece'
la**d**a	'chili'

(b) Lenis

hu**β**a	'grey hair'
a-u**r**i	'alive'

(c) Prenasalized

le**mb**a	'sticky'
a**ndr**ə	'ask'

6.0 Implosives in WCMP, POc, and Nias?

In contrast with the Northern Borneo groups discussed above, the languages presented here (particularly Nias and the WCMP languages) have rich inventories of words with implosive or fortis reflexes in both initial and medial positions. Many of these do not meet the criteria of (a) post-schwa position or (b) being part of a reduplicated form, and include at least some forms for which Austronesian etymologies can be demonstrated. These will be the topic of the present section.

6.1 Secondary implosives in Macro-Sumba

There is one case in which it can be shown concretely that implosives have arisen secondarily in the Macro-Sumba languages: when PMP *ɖ followed schwa, it was reinterpreted as an implosive:

(32)

Gloss	PMP	PSumba	PHD
day	*qaləɖaw	*ləɗo	*loɗo
gall	*qapəɖu	*pəɗu	*əɗu
sharp pain	*hapəɖəs	---	*pəɗa
stinging pain	*hapəɖiq	---	*pəɗi[21]
ant	*səɖəm	---	*[s]əɗa

Pre-consonantal schwa may have conditioned implosion in other voiced stops as well. This is certainly true in the cases of Bimanese and Macro-Sumba below; it does not appear to have occurred in POc[22]:

(33)

Gloss	PMP	Bima	PSumba	PHD	POc
to douse	*səbu	---	*səɓu	*səɓu	---
sugarcane	*təbuh	doɓu	*təɓu	*ɖəɓu	(*topu)
to clear vegetation	*təbah	---	---	---	(*topa)
dark	*ma-ədəm	---	---	*məɗa[23]	(*marom)
head covering	*təduŋ	toɗu	*təɗuŋ	*təɗu	---
to stand	*kəɟəɢ	kiɗi	---	*kəɗi	---

Reduplicated forms, on the other hand, do not appear to have conditioned implosion, although implosives or fortis reflexes occur in a post-schwa environment in Nias ('tie by encircling') and Macro-Sumba ('mouth'). The medial reflex *(d)r in POc can be explained as the result of a prenasalized stop: *-ŋd- > *-nd- > *-(d)r-; otherwise, POc has plain reflexes following even original schwa:

(34)

Gloss	PMP	Nias	Bima	PSumba	PHD	POc
peel off	*bakbak	---	---	---	---	*papak
mouth	*baqbaq	[mb]aβa	---	*βə**ɓ**a	*βə**ɓ**a	*papaq
tie by encircling	*bəɖbəɖ	[mb]ə**b**ə	---	---	---	---
pulverize	*bəkbək	---	---	---	---	*popok

---

[21] PHD 'itch'

[22] See also PMP *təbuɖ > POc *topuc 'spring (of water)', PMP *ləbəŋ > POc *lopoŋ 'to bury', PMP *əbəŋ > POc *opoŋ 'to dam'.

[23] 'night'

lips	*biʀbiʀ	[mb]eβe	wiwi	*βiβi	---	*pipiR
weevil	*bukbuk	---	---	---	---	*pupuk
dark	*dəmdəm	---	---	---	---	*rodrom
cold	*ma-diŋdiŋ	---	---	*ma-riŋi	*mə-riŋi	*ma-dri(d)riŋ

Having discussed cases in which implosives may be of secondary origin, we can now revisit the question of whether or not there is evidence for original implosives in PMP. As shown in section five, there are lenis/fortis contrasts in initial and medial positions in Nias, the WCMP languages, and POc which could be indicative of a plain/implosive contrast. We now move on to comparisons across Nias, WCMP and POc with an eye toward examining whether evidence exists for original implosives reconstructible to any higher phylogenetic level.

Correspondences for plain and postulated implosive reflexes are given in the table below:

Table 8: Reflexes of plain and implosive voiced stops in Nias, WCMP, and POc

PMP	Nias	Bima	PSumba	PHD	POc
*b	[mb]-, -β-	w	*β	*β	*p
*ɓ	b	ɓ	*ɓ	*ɓ	*b
*d	[ndr]-, -r-	r	*r	*r	*r
*ɗ	d	ɗ	*ɗ	*ɗ	*d
*ɟ	[ndr]-, -r-	r	*r	*ʄ	*s
*ʄ	[ndr]-, -r-	ɗ	*r	*ʄ	*s

6.1 Voiced Bilabial Stops

Examples of plain bilabial stops are given below in (35), and fortis bilabial stops in (36). In the WCMP languages, a prenasalized reflex often results from the contraction of *ma-b/ɓ > *mb*, and is ambiguous in differentiating between original *b and *ɓ. Words with unexpected reflexes are placed in bold; possible Malay sources for these are given in the last column:

(35)

Gloss	PMP	Nias	Bima	PSumba	PHD	POc	Malay
below	*babaq	---	awa	*βaβa	*βaβa	*papaq	
pig	*babuj	---	wawi	*βaβi	*βaβi	---	
flood	*bahaq	---	---	*[β]iβa	*βaa	*paaq	
female	*b[in]ahi	---	wei	*βine	*βəni[24]	*p[in]e	
stench	*bahuq	**a-bəu**	wou[25]	*βau	*βau	***bou**	bau
repay, respond	*baləs	[mb]alə	---	***ɓalas**	---	---	balas
mouth	*baqbaq	[mb]aβa	---	*βəɓa	*βəɓa	*papaq	
new	*baqəʀuh	---	**ɓou**	*mbəʔu	*βiu	*paqoʀuh	
lungs	*baʀaq	[mb]o	---	---	*βaa	*paʀaq	
molar	*baʀəqaŋ	[mb]oha	---	---	---	*paʀaŋ	
hibiscus	*baʀu	---	wau	*βau	*βau	*paʀu	

---

[24] The Dhao and Hawu forms mean 'sister; mother's younger sister'. The PHD form for 'female' can be reconstructed as *mbəni (< *mbina), from Dhao *bβəni*, Hawu *bəni*.

[25] The WCMP languages disagree with all other witnesses in giving evidence for a plain initial. See also Proto-Chamic *ɓɔw ~ *bɔw.

trunk, log	*bataŋ	---	**ɓata**	---	---	*pataŋ	bataŋ
stone	*batu	---	wadu	*βatu	*βaḍu	*patu	
buy, cost	*bəli	[mb]əli	weli	*βəli	*βəli	*poli	
paddle	*bəʀsaj	---	wese	---	*βo[s]e	*pose	
crack, split	*bətak	---	---	---	*βəta	*potak	
k.o. bamboo	*bətuŋ	---	---	*βətu[26]	---	*potuŋ	
lips	*biʀbiʀ	[mb]eβe	wiwi	*βiβi	---	*pipiʀ	
seed rice	*binəhiq	---	---	*βini	*βini	---	
wild taro	*biʀaq	[mb]io	wia	*βiʔa	---	*piʀaq	
calf of leg	*bitiəs	---	wisi	*βici	---	---	
star	*bituqən	---	---	---	*βətu	*pituqun	
fruit	*buaq	[mb]ua	wua	*βua	*βua	*puaq	
fish trap	*bubu	[mb]uβu	---	---	*βuβu	*pupu	
head hair	*buhək	[mb]u	---	*βu:	---	---	
drunk	*ma-buhək	**mabu**	---	*ma-βuk	*ma-βo	---	mabuk
foam	*buḍaq	---	---	*βura	---	*pusoq	
open	*buka	---	---	---	*mboka	*puke	
node, joint	*buku	[mb]uʔu	---	*ka-βuku	---	***buku**	
moon	*bulan	---	wura	*βulaŋ	*βəru	*pulan	
ear of grain	*buliʀ	---	wuri	*βuli	*βuri	*puliʀ	
body hair	*bulu	[mb]ulu[27]	wuru	*βulu	*βuru[28]	*pulu	
hide	*buni	---	---	---	*βuni	*puni	
flower	*buŋa	---	---	*βuŋa[29]	---	*puŋa	
crocodile	*buqaja	---	mbai	*βoja	*βoe	*puqaja	
hunting bow	*busuʀ	---	---	---	*βu[s]u	*pusuʀ	
testicles	*butuk	---	wudu	---	---	*putuk	
southeast wind	*habaʀat	---	---	*βaa	*βaa	*apaʀat	
rat	*-labaw	---	ka-rawo	*laβo	*laβo	*kalapo	
wave	*nabək	---	---	---	*naβa	*napok	
ash	*qabu	[n]aβu	---	*aβu	*aβu	*qapu	
grey hair	*quban	huβa	---	*uβaŋ	---	*qupan	
yam	*qubi	goβi	uwi	*uβi	---	*qupi	
evening	*ʀabiqi	meʔowi[30]	awi(-na)[31]	---	---	*ʀapi	
fish poison	*tuba	[d]uβa	duwa	*tuβa	---	*tupa	

(36)

Gloss	PMP	Nias	Bima	PSumba	PHD	POc
short	*ɓaɓaq	---	---	*ɓaɓa	*ɓaɓa	---
reverse	*ɓalik	bali-ʔə[32]	ɓali	*ɓali	*ɓal[i]	---
change	*ɓaliw	---	---	---	*ɓalu	*bali
widow	*ɓalu	---	---	*ɓalu[33]	*ɓalu	---

---

[26] 'kind of reed grass, Imperata cylindrica species'
[27] 'leaf'
[28] '(plant) fiber'
[29] 'tree species with medicinal leaves and bark'
[30] 'last night'; the expected form is *meʔoβi*
[31] 'yesterday'
[32] 'turn'
[33] 'reciprocal relation of a potential spouse'

brave	*ma-ɓaʀani	---	mbani	*mbani[34]	*ɓani	***paʀane***
swell	*ɓaʀəq	a-bao	---	---	---	*baʀoq
wet	*ma-ɓasəq	a-basə	ɓeca	*mba[ç]a	*ɓasa	---
pound rice	*ɓaju	---	mbadʒu	*ɓai	---	---
split (tr)	*ɓəkaq	---	---	*ɓəka	*ɓəka	***pokaq***
heavy	*ɓəʀəqat	a-bua	---	*mbuəto[35]	*ɓia	---
night	*ɓəʀŋi	boŋi	---	---	---	*boŋi
sated	*ma-ɓəsuʀ	a-buso	mbocu	*mbə[ç]u	*ɓəcu	*bosuʀ
blind	*ɓuta	---	mbuda	---	*ɓəɖu	*buta
fall	*naɓuq	---	m-aɓu	*naɓu	***mə-naβu***	---
stab	*tuɓak	---	tuɓa	---	*təɓ[u]	---

Although the above correspondences taken as a whole are generally regular, there are some additional details which complicate the decision to reconstruct an implosive series. First, the majority of Bimanese initials, and a good number of the Proto-Sumba initials, have the vestiges of an original nasal prefix which (as mentioned above) renders the manner of the root initial ambiguous.

Second, in the case of Nias, the majority of forms (four out of six) have a prefix *a- which raises the question of whether the left edge of the root could have been protected from lenition because of the historical morphological context. However, there are also Nias forms with lenis reflexes following the same prefix, showing that fortis and lenis forms did contrast in this environment:

(37) (a)

Gloss	Nias	Gloss	Nias
sullen	a-baə-baə	completed	a-βai
hard	a-beʔe	new	a-βena
short	a-bətə	young	a-βuju
exfoliated	a-buru	reduced	a-βuβu

(b)

Gloss	Nias	Gloss	Nias
low	a-daβa	torn	a-raβi
short	a-dogo	lazy	a-reu
straight	a-dələ	far	a-rəu
choked	a-dəʔə	thin, limp	a-ruso

6.2 Alveolar implosives

There are fewer alveolar examples than bilabial examples; as the place of articulation becomes progressively posterior, numbers diminish. This is to be expected both according to the typology governing implosives (if this is a legitimate category) as well as the ratio of words in the lexicon (as of this writing, the number of words with initial *b in the ACD is listed at 1,033; those with initial *d are listed at 192 and those with initial *z at 50). Examples of lenis alveolar stops are given in (38) and fortis alveolar stops in (39):

---

[34] The word for 'man' in the western Sumba languages is *ka-ɓani ('brave one'), showing that the underlying initial is indeed implosive.

[35] The vocalism in this form is aberrant, casting some doubt on its ultimate cognacy with the other forms.

(38)

Gloss	PMP	Nias	Bima	PSumba	PHD	POc
scurf	*daki	[ndr]aʔi	---	---	*raʔi	---
leaf	*dahun	---	roʔo	*raʔuŋ	*rəu	*raun
blood	*daʀaq	[ndr]o	raa	*raʔa	*raa	***daʀaq**
hear	*dəŋəʀ	roŋo	riŋa	*rəŋə	*[ɗ/r]iŋa	*roŋoR
fathom	*dəpa	[ndr]əfa	ndupa	---	*rəpa	*ropa
cold	*ma-diŋdiŋ	---	---	*ma-riŋi	*me-riŋi	*madri(d)riŋ
housepost	*diʀi	---	rii	---	*rii	*ariʀi
k.o. tree	*ditaq	---	---	*rita	---	---
bone	*duʀi	[ndr]oi	---	*rui	*rui	*ruʀi
shrimp	*qudaŋ	[g]uro	---	*ka-uraŋ	*k-əru	*quraŋ
alive	*ma-qudip	a-uri	mori	*morip	*muri	*maqurip
they	*si-da	jaʔira	---	***ɣi-ɗa**	*rV	*ira
spoon	*s[i/u]duq	---	ciru	*[ç]uru	*curu	---
look upward	*ti-ŋadaq	---	taŋara	*taŋara	*təŋara	---
rear, rudder	*m-udəhi	---	---	---	*muri	---
young, green	*ŋ-uda	a-hurə	**ŋoɗa**	*ŋura	*ŋəru	*mura
sleep	*tuduʀ	---	---	*turu	---	*maturuʀ
exist	*wada	---	wara	---	*era	---

(39)

Gloss	PMP	Nias	Bima	PSumba	PHD	POc	Malay
in(side)	*daləm	---	---	*ɗalə	*ɗara	***ralom**	dalam
at, above	*ɗi (atas)	---	ɗi	*ɗi-ata	*ɗi-da	---	di atas
wall	*ɗiŋɗiŋ	---	ɗinɗi	*ɗindiŋ	*ɗiɖi	***ridriŋ**	dindiŋ
bathe	*ɗiʀus	---	ndeu	---	*[ɗ/ʄ]iu	***riʀus**	
two	*ɗua	dua	ɗua	*ɗua	*ɗua	***rua**	dua
extinguish	*paɗəm	---	---	*pəɗa	*paɗa	---	padam

Unlike the case of the fortis bilabial stops, the examples of fortis alveolar stop are not generally complicated by morphological concerns. However, the greatest amount of agreement is between Nias and the WCMP languages, with POc having a strong tendency to favor lenis reflexes.

4.3
Palatal implosives

Only Bimanese appears to distinguish between plain *ɟ and implosive *ʄ. The PMP alveolar and palatal voiced stops merged in Bimanese, so that it has three distinct reflexes of PMP *ɟ: plain (and lenited) [r], implosive [ɗ], and prenasalized [nd]. Since Bimanese [nd] can derive from either *Nd or *Nɗ, prenasalized Bimanese forms cannot help disambiguate between *ʄ and *ɟ.

The only reflex of PMP *ɟ in PHD is *ʄ, suggesting that original PHD *ɟ and *ʄ merged as *ʄ. In Proto-Sumba, *ʄ merged with *ɟ, which then shifted to *d and finally lenited to [r]; this appears to be what happened in Nias as well. Several of the forms below are therefore ambiguous between *ʄ and *ɟ. When unclear, ambiguous forms are given in (40) with examples of the lenis voiced stop (note that metathesis has occurred in PSumba 'road'); examples of the fortis voiced stop are given in (41):

(40)

Gloss	PMP	Nias	Bima	PSumba	PHD	POc
needle	*ɟaʀum	---	ndau	*roŋ-ə	*ʃau	*saʀum
grass	*ɟukut	[ndr]uʔu	---	*rut-ə	*ʃuʔu	---
road	*ɟalan	(lala)	---	*lara	*ʃara	*salan
rain	*quɟan	---	ura	*uraŋ	*əʃi	*qusan

(41)

Gloss	PMP	Nias	Bima	PSumba	PHD	POc
far	*ʄauq	a-rəu	ɗoʔo	*rau	*ʄəu	***sauq**
near	*qaʃani	---	ɗeni	*rani	---	---

One of the biggest questions regarding a possible implosive palatal stop is what to make of the POc reflex *j. The POc reflex which correlates with the Bimanese form in 'far' is not the expected *j, but rather *s, which we predict should reflect PMP *ɟ, not *ʃ. There are only two forms in our dataset in which POc *j correlates with PMP *ɟ (PMP *taɟəm 'sharp', POc *tajim 'sharpen' and PMP *baliɟi 'k.o. grass', POc *pali[j]i 'id.'). On the other hand, POc *j in initial position correlates with PMP *s in the following instances:

(42)

Gloss	PMP	POc
stopper, plug	*səŋsəŋ	*jojoŋ
spear	*saət	*jaot
Cordyline sp.	*siʀi	*jiʀi
anchor	*sauq (?)	*jauq

Since I do not see any direct evidence for the traditional interpretation of initial POc *j deriving from an original *Ns sequence, it is difficult to know what to make of this situation. For now, this question must be left for further research.

6.5 Summary of evidence

The hypothesis regarding original implosives in PMP presented above must remain tentative for now, but I feel it is worth further exploration. Certainly not all cases of putative implosives can be explained in the way shown above for PNS, because they do not (a) all follow schwa or (b) belong to reduplicated forms; this is true categorically for all cases which occur in initial position.

The main obstacles in confirming this hypothesis have been the following:

(1) While there are numerous examples of implosives in WCMP and of fortis reflexes in Nias and to a lesser extent POc, it has proven difficult to find many cases in which Austronesian etymologies exist with witnesses in all three groups.

(2) The fact that at least some medial 'nasal grade' reflexes in POc can be shown to derive from earlier prenasalized stops leaves the question open of whether initial 'nasal grade' reflexes may be explained in the same way. It would be desirable in further research to find a way to discriminate between these two alternatives.

(3) It may turn out to be the case that some of the proposed instances of fortis/implosive reflexes above will eventually shown to be loans from either Malay or other languages; however, several of the items above are core vocabulary items and it seems unlikely that all of them would be amenable to this explanation. This point is not relevant to POc, but a better understanding of historical contact and the resulting loan phonology in both Nias and the WCMP languages is highly desirable.

7.0 Summary and discussion

This paper has two goals. The first has been to examine a case study of genuinely secondarily-derived implosives in North Sarawak. I argue that these are derived from what should be reconstructed as medial geminate voiced stops in Proto North Sarawak, the sources of which (as originally argued by Blust) are (a) lengthening after a preceding schwa and (b) coalescence of a consonant cluster in reduplicated forms. When this principle is applied to WKT, it can be seen that the same process which occurred in North Sarawak can also be used to explain the development of preglottalized stops and implosives in Kra-Dai; this contrast was inherited in both Proto-Hlai and Saek, but generalized to all original medial voiced stops in other Tai languages as well as Proto-Be, perhaps as a result of the neutralization of all original first syllable vowels to schwa before the syllables themselves were ultimately lost. Supporting evidence from Austroasiatic has also been provided, in which it appears that implosives were also conditioned by a preceding schwa, at least in some cases.

Second, the open-ended question was asked whether the data from Nias, PWCMP and POc presented here provide evidence for the reconstruction of a series of voiced implosive stops *ɓ, *ɗ, and (possibly) *ʄ in Austronesian.

The development of the plain voiced stops in many WCMP languages is completely symmetrical, whereas it was asymmetrical in several other Austronesian languages. In this way, the original three-way contrast between voiceless, voiced, and implosive stops was maintained in the latter. The majority of other Austronesian languages, conversely, experienced mergers of the bilabial and alveolar plain and implosive voiced stops on the one hand, and the plain voiced and voiceless velar stops on the other[36] (the remaining palatal voiced stop then often merging with the voiced alveolar stop, although its development was more varied). I use the typical development of the WCMP languages cited in this paper as an example:

WCMP			Other languages		
*ɓ	>	ɓ	*ɓ	>	b
*b	>	β	*b	>	b
*ɗ	>	ɗ	*ɗ	>	d
*d	>	r	*d	>	d
*k	>	k	*k	>	k
*g	>	ɣ	*g	>	k

Under this hypothesis, the lenition of *b and *d was motivated by a maintenance of contrast between plain and implosive voiced stops. Lenition of *g becomes part of this overall trend, the crucial difference being that in languages where *g failed to lenite, it instead devoiced, merging with original *k. This can be attributed on the one hand to the absence of an original *ɠ (there was nothing with which to contrast), and on the other to a typological tendency which disfavors voiced posterior stops (Croft 2003: 159). The reason that traditional *g was not prone to lenition was because it was actually uvular *ɢ, which filled the gap left behind by original *g when it either devoiced or lenited.

---

[36] For further discussion of this velar contrast, see Norquest & Downey (2013).

The historical viability of this scenario depends crucially on the evidence that can be marshaled for the existence of an original implosive series. My present position is that the current evidence is not sufficiently strong to prove this case; nor is there sufficient evidence to disprove it. In order to do the latter, future research must show convincingly that (a) the fortis series of voiced stops in Nias is derived secondarily, (b) that 'nasal grade' reflexes in POc (particularly those in initial position) are the result of accretion of an original *N-C sequence in all positions, and (c) that the implosives in WCMP (both in word-initial position and in word-medial position after non-schwa vowels) are the result of either some secondary change, or otherwise of borrowing from either Malay or some other language. Whether the implosive hypothesis is confirmed or disproven, in either case it will mark an advance in our understanding of Austronesian historical phonology and phylogeny.

In summary, I wish to note a few observations from Blust (2009). Blust notes that "Thao, Bunun, and Tsou share the preglottalization of *b* and *d* as an areal feature" (Blust 2009: 52, 641) and that "implosive allophones of *b*, *d* and *g* are reported for Central Sama of the Sulu Archipelago (ibid: 641) and that *b* and *d* (but not *g*) are "automatically preglottalized [...] in Sindangan Subanon of western Mindanao" (ibid: 167); moreover, "implosive consonants are fairly common in the southeastern languages (Wolio, Muna, Tukang Besi) [of Sulawesi]", with Wolio and Tukang Besi having both *ɓ* and *ɗ* but Muna just *ɓ* (ibid: 186). I consider these to be areas in which further research should be performed, with the above-mentioned southeastern Sulawesi area a promising place to start. I hope that other Austronesianists (as well as scholars of other Southeast Asian language phyla) will be encouraged to consider additional data related to the plain/implosive contrast discussed in this paper that may have been overlooked before now.

References

Adelaar, K. Alexander & Nikolaus P. Himmelmann. *The Austronesian Languages of Asia and Madagascar*. London/New York: Routledge.

Antonissen, A. 1958. *Kadazan-English and English-Kadazan Dictionary*. Canberra: Government Printing Office.

Blust, Robert. 1995a. Notes on Berawan Consonant Gemination. *Oceanic Linguistics* 34 (1): 123-38.

—. 1995b. Austronesian Comparative Dictionary. http://www.trussel2.com/ACD/acd

—. 1997a. Ablaut in Northwest Borneo. *Diachronica* 14 (1): 1-30.

—. 1997b. Nasals and Nasalization in Borneo. *Oceanic Linguistics* 36 (1): 149-79.

—. 1998. The Position of the Languages of Sabah. In *Pagtanáw: Essays on Language in Honor of Teodoro A. Llamzon*, Ma. Lourdes S. Bautista (ed.). 29-52. Manila: Linguistic Society of the Philippines.

—. 2000. Low-Vowel Fronting in Northern Sarawak. *Oceanic Linguistics* 39 (2): 285-319.

—. 2001. Language, Dialect, and Riotous Sound Change: The Case of Sa'ban. In *Papers from the Ninth Annual Meeting of the Southeast Asian Linguistics Society 1999*, Graham Thurgood (ed.). 249-359. Arizona State University Program for Southeast Asian Studies, Monograph Series Press, Tempe: Arizona State University.

—. 2002. Kiput Historical Phonology. *Oceanic Linguistics* 41 (2): 384-438.

—. 2006. The Origin of the Kelabit Voiced Aspirates: A Historical Hypothesis Revisited. *Oceanic Linguistics* 45 (2): 311-38.

—. 2007. Òma Lóngh Historical Phonology. *Oceanic Linguistics* 46 (1): 1-53.

—. 2008. Is there a Bima-Sumba Subgroup? *Oceanic Linguistics* 47 (1): 45-113.

—. 2009. *The Austronesian Languages*. Canberra: Pacific Linguistics, Research School of Pacific and Asian Studies, Australian National University.

—. 2010. The Greater North Borneo Hypothesis. *Oceanic Linguistics* 49 (1): 44-118.

—. 2012. Hawu Vowel Metathesis. *Oceanic Linguistics* 51 (1): 207-233.

Croft, William. 2003. *Typology and Universals*. Cambridge University Press.

Greenhill, Simon, Robert Blust & Russell Gray. 2003-2012. Austronesian Basic Vocabulary Database. http://language.psy.auckland.ac.nz/austronesian/

Grimes, Charles. 2008. *Lii Hawu (Sabu) Online Dictionary*. Kupang: UBB-GMIT. www.e-kamus2.org

—. 2010. Hawu and Dhao in Eastern Indonesia: Revisiting Their Relationship. In *East Nusantara: Typological and Areal Analyses*, Michael Ewing & Marian Klamer (eds.). Canberra: Pacific Linguistics.

Lynch, Ross & Crowley. 2002. The Oceanic Languages. Richmond: Curzon Press.

Mansyur, Ismail, Azis Muhidin, Yakub Saleh, H. Taufik & Usman Kasim. 1985. *Kamus Bima-Indonesia*. Jakarta: Pusat Pembinaan dan Pengembangan Bahasa Departemen Pendidikan dan Kebudayaan.

Norquest, Peter. 2015. *A Phonological Reconstruction of Proto-Hlai*. Leiden: Brill.

Norquest, Peter & Sean Downey. 2013. Expanding the PAn Consonant Inventory. *Journal of the Southeast Asian Language Society* 6: 99-145.

Onvlee, Louis. 1984. *Kamberaas (Oost-Soembaas)-Nederlands Woordenboek*. Dordrecht: Foris.

Pittayaporn, Pittayawat. 2009. *The Phonology of Proto-Tai*. PhD dissertation: Cornell University.

Prentice, D.J. 1974. Yet Another PAN Phoneme? *Oceanic Linguistics* 13: 33-75.

Ross, Pawley & Osmond. 1998. *The Lexicon of Proto Oceanic* (4 volumes). Canberra: Pacific Linguistics.

Thurgood, Graham. 1999. *From Ancient Cham to Modern Dialects: Two Thousand Years of Language Contact and Change*. Honolulu : University of Hawai'i Press.

Wijngaarden (1896). *Sawuneesche Woordenlijst*. Martinus Nijhoff.

Wolff, John U. 2010. *Proto-Austronesian Phonology with Glossary* (2 volumes). New York: Southeast Asia Program Publications, Cornell University.

Yunus, H. Anwar. 1981. *Kamus Bahasa Bima-Indonesia, Indonesia-Bima (Nggahi Mbojo).* Jakarta: Yayasan "Muhammad Salahuddin".

POSTSCRIPT

This article is submitted respectfully in memory of Hal Fleming. I first corresponded with Hal more than twenty years ago, when I first became interested in historical and comparative linguistics and contacted him in regard to Mother Tongue, at that time only a newsletter. Hal was warmly responsive to my initial inquiry, and encouraged me to pursue my new interest; my interactions with him in those first few years directly influenced what I would pursue as a career throughout graduate school and beyond.

I had only two opportunities to meet Hal in person, both around the turn of the millennium. He was refreshingly candid about his ideas and opinions, and had an infectious sense of humor. I admired him as both a linguist and an anthropologist and fieldworker; his contribution to long-range historical linguistics has been significant, and it is safe to say that this journal would not exist without his early efforts and continuous work and support. Hal worked hard, often thanklessly and without recognition for his many contributions to the field – may he rest in peace.

P.N.

MOTHER TONGUE
Journal of the Association for the Study of Language in Prehistory • **Issue XX • 2015**
In Memory of Harold Crane Fleming (1926-2015)

Sibling Terms in Kiowa-Tanoan and Uto-Aztecan

Jane H. Hill
University of Arizona

1.0 Introduction

Similarities in basic vocabulary between languages in the Kiowa-Tanoan and Uto-Aztecan families have been noticed for many years (e.g. Harrington 1928:1, Sapir 1929). Whorf and Trager (1937) presented the first detailed arguments for a genetic connection between the two families, presenting 102 proposed cognate sets (with daughter-language reflexes shown for only 67) and reconstructions to a common ancestor, "Aztec-Tanoan". Whorf and Trager did not consider materials from Kiowa, which they thought was more distant from Tanoan than was Uto-Aztecan. Davis (1989) returned to "Aztec-Tanoan", taking into account work by Hale (1962, 1967) that had incorporated Kiowa material. Subsequent research (e.g. Shaul 1985, Campbell 1997, Hill 2005) has identified many problems with the "Aztec-Tanoan" hypothesis.

This essay takes up sibling terms in the two groups, which exhibit striking resemblances of the type that has attracted scholars to the possibility of a Kiowa-Tanoan/Uto-Aztecan clade. Whorf and Trager reconstructed two labels for siblings, ("Aztec-Tanoan) **pą 'older brother' (Whorf and Trager 1937:622, no. 38), and **p'o 'younger brother' (Whorf and Trager 1937:622, no. 43). Davis also included 'older brother" (1989:368, no. 1), and reconstructed as well an almost certainly spurious *p'a 'sister' (Davis 1989:369, no. 19). However, a deeper examination of the Kiowa-Tanoan sibling terms, undertaken in the present essay, suggests that some of the resemblances accepted as correspondent by earlier authors are illusory, and, furthermore, that the problems with the sibling terms demonstrate that any return to the Aztec-Tanoan problem will require a thoroughly revised understanding of Kiowa-Tanoan (and probably of Uto-Aztecan as well).

Recent work on Uto-Aztecan kinship systems (Hage et al. 2004, Hage 2011, Hill 2015) suggests that the proto-language system was of "Dravidian" type. Dravidian systems exhibit "crossness": parents' same-sex siblings (father's brother, mother's sister) are called by the term for parents, and by extension, parents' same-sex siblings' children are ego's siblings. These parallel cousins, called by the same terms as full siblings, are thus distinguished terminologically from cross-cousins, the children of parents' opposite-sex siblings (father's sister, mother's brother). Second, such systems often exhibit intergenerational equations, where grandparents and grandchildren call each other by the same term, and aunts/uncles and nieces/nephews call each other by the same term (often with a diminutive marker on the junior member of the reciprocal pair). Finally, such systems exhibit affinal equations, where the term for "father's sister's husband" is identical to the term for "mother's brother", and the term for "father's brother's wife" is identical to that for "mother's sister." Such equations have been taken to encode a preference for marriage between cross-cousins.

While at the present day all kinship systems in the Tanoan languages spoken in the Tewa- and Tiwa-speaking Rio Grande pueblos are of the "Eskimo" type, Whiteley (2015) has identified traces within them suggesting that these are probably ancestrally Dravidian as well. Whiteley (2015) suspects that reorganization of the systems reflects the influence of the Catholicism imposed by Spanish conquerors on the Tanoan communities from the end of the 16th century onward.

Both Kiowa-Tanoan and Uto-Aztecan kin-term systems make terminological distinctions according to seniority in the same generation. This is very common in indigenous North America, and appears in the sibling terms that are discussed here.[1]

2.0 Sibling Terms in Uto-Aztecan and Kiowa-Tanoan

2.1 Preliminary resemblances.

While Whorf and Trager (1937) and Davis (1989) reconstructed some kinship terms, they did not approach these terms as parts of a systematic set of semantic contrasts. An example of a comparison from this point of view appears in Table I, which compares all the sibling terms from Towa of Jemez Pueblo, New Mexico with all the sibling terms reconstructed by Stubbs (2011) (and other authorities cited there) for Proto-Uto-Aztecan (PUA). These distinguish male from female, and older (than ego) from younger. Note that in Towa these sibling terms are used as well for parallel cousins, and this was surely the case in PUA as well.

The Towa and PUA sibling-term systems share two similarities apart from the look-alike nature of the lexical items: the contrast between /p/ 'male' and /k/ 'female' for older siblings, and apparent vowel ablaut for older vs. younger brother. When I first noticed these properties, which approach shared aberrancy in the quasi-paradigmatic context of a system of kin terms, I was quite struck by it and thought that a deeper investigation of these parallelisms might provide support for the "Aztec-Tanoan" hypothesis. Unfortunately, when the Towa terms are replaced by Proto-Kiowa-Tanoan (PKT) reconstructions, following Sutton's (2014) recent treatment, the case for common origin of these terms is greatly complicated and, in the main, weakened.

Table I: Towa and Proto-Uto-Aztecan Sibling Terminologies

	Towa*	Proto-Uto-Aztecan
Older Brother	pǽpɨ́	*paʔci
Younger Brother	pétɨ́	*poni, *po(ʔot)
Older Sister	kô·	*koʔci
Younger sister	p'ǽ·ʔe	*pini, *pi(ʔit) *

*pi(ʔit) is my own reconstruction; Stubbs (2011) and others apparently did not notice the identity between the Takic developments of the younger brother and younger sister terms, which inspired the second alternate in each case.

Sources: PUA Stubbs 2011, Towa oB: Sprott 1992:256, yB:Sprott 1992:49, oZ: Yumitani 1998:11, yZ:Sprott 1992:76. Following Sutton (2014) I do not mark aspiration on /k/ in Towa 'older sister'.

---

[1] Abbreviations for kin terms used in the tables are as follows: GGF 'great-grandfather', F 'father', M 'mother', B 'brother', Z 'sister', D 'daughter', S 'son', o 'older', y 'younger', ms 'man speaking', ws 'woman speaking'. Thus oZ 'older sister', FBD 'father's brother's daughter', MyZ 'mother's younger sister', etc.

The PUA reconstructions shown are in most details uncontroversial. All forms are well attested across the family and exhibit regular correspondences with the exception of some details in second-syllable increments. However, Proto-Kiowa-Tanoan (PKT) kin terms have been little explored, and I undertake here an initial exploration of that problem.

Following Sutton (2014) I distinguish seven daughter languages: Kiowa, Rio Grande Tewa, Arizona Tewa, Northern Tiwa Taos, Northern Tiwa Picuris, Southern Tiwa, and Towa. Resemblant sets for the sibling terms are shown in Table II. This starting point attempts only to maximize semantic and phonological resemblance, although I include forms from Sutton's (1914) proposed cognate sets for 'older brother' and 'younger sister' in the table as he gives them. Empty cells mean that I have not identified any resemblants.

Table II. Kiowa-Tanoan Sibling Terms: Preliminary Resemblances

Language	Kiowa	Rio Grande Tewa	Arizona Tewa	Taos Northern Tiwa	Picuris Northern Tiwa	Southern Tiwa	Towa
Older Brother	pa·bî· (B (ms))	paʔrê· 'older sibling' (pahpá·- 'GGF' (Sutton 2014:601)	pip'î·	pɔpɔ-	papa-	papa-	pǽ·pɨ́
Younger Brother				p'ǫy-	p'ay-'o	p'ay-'u	pét-ɨ́
Older Sister (1)	kò·k-oy (M, MZ)	ko'ô· (FBD, MZD) (FoZ (Santa Clara))	kó·ʔo (MyZ)				kô· (oZ)
Older Sister (2)		káyê· MZ	káyê· (MoZ) *kà·ká* (oZ)	ka (M) kaju- (MZ)	kia- (M)	keʔi (M) keču (MZ) kiwey (FZ (Boas))	
Younger Sister	p'í· (Z(ws))	ʔayų 'girl'	ʔa·yú 'girl'	p'ayu	p'ąyʔo	p'eču	p'ǽ·ʔe

The "older brother" forms except for Rio Grande Tewa *paʔrê·* and Arizona Tewa *pip'î·* are from Sutton 2014:601. The "younger sister" forms are from Sutton 2014:550. Other forms are re-spelled following Sutton's system from Trager (1943) for the Tiwa languages, Dozier (1955) for the Tewa languages, and Yumitani (1998) for Towa.

2.2. ‘Older brother’

In the set for ‘older brother’ in Table II, I include the Arizona Tewa form because it is resemblant, but it probably does not belong in the set, since its medial glottalized /p’/ is non-correspondent with the medial plain-release /p/ in the other languages. Laryngeal state is stable in Kiowa-Tanoan with very few exceptions (Hale 1967, Sutton 2014).

Whorf and Trager (1937:622, no. 38) reconstructed “Proto-Tanoan” *pą for this root. Davis reconstructed PKT *pa ~ *po. Hale (1962:2 no.5), in a study focusing almost entirely on stem-initial consonants, cites the Towa and Kiowa forms as possible cognates (including both Towa pǽ·pɨ́ ‘elder brother’ and pétɨ́ ‘younger brother’ as perhaps correspondent to Kiowa pa·bî·).

In his recent dissertation, which includes the most detailed discussion of Kiowa-Tanoan vocalism presented thus far, Sutton (2014:601) reconstructs a root for ‘older brother’. However his cognate set does not include Rio Grande Tewa *paʔrê·* ‘elder brother’ (attested both for Okay Owinge (formerly San Juan Pueblo) (Martinez 1982:9) and Santa Clara (Dozier 1955)), which he views as non-correspondent. He is almost certainly correct: as shown below, *paʔrê* is part of another set that also includes Towa pétɨ́ ‘younger brother’. Instead, Sutton’s Rio Grande Tewa cognate is *pahpá·*, ‘great-grandfather’ (the word means ‘great-grandmother’ in Arizona Tewa (Dozier 1955)). Sutton does not include Arizona Tewa pip’î· ‘older brother’. For his set he reconstructs PKT *pipV ‘older brother’, a solution that resembles PUA *paʔci only in the initial /p/.

Why does Sutton not reconstruct a first vowel *a for this “older brother” set? Under a “majority rule” analysis, apparently followed by Whorf and Trager (1937) and Davis (1989) we would expect *papV, which would better match the PUA form. However, many KT cognate sets show that PKT *a does not become Towa /æ/ after labials. We would expect Towa /a/ following a labial, as in the set for ‘ear’ in Table III. Table III also shows that /o/, not /a/ as in the Rio Grande Tewa “older brother” forms in Table II, is the regular Tewa reflex of PKT *a (Sutton 2014:690).

Table III. Kiowa-Tanoan ‘ear’

Language	Kiowa	RG Tewa	Arizona Tewa	Taos	Picuris	Southern Tiwa	Towa
ear	t’ɔ́·-	ʔo·ye·	ʔo·yɛ·	t’ɔłɨɔ	t’ałɨ	t’ałɨa	wâ·tye·

For the vowel correspondence in ‘older brother’, Kiowa /a/, Rio Grande Tewa /a/, Taos /o/, Picuris /a/, Southern Tiwa /a/, Towa /æ/, Sutton reconstructs PKT *i. Unfortunately, this series is not included in his summary list of correspondences for this PKT vowel (Sutton 2014:574). However, another one of his sets (Sutton 2014:679), shown in Table IV, does exhibit this correspondence (in Kiowa and the Tiwa languages, Taos Northern Tiwa, Picuris Northern Tiwa, and Southern Tiwa, the corresponding phoneme in Table IV is the second vowel). Sutton states that Kiowa arrows were often made from willow wood, although he admits that the semantic resemblance is problematic. In any case, “older brother” and “willow, nest” are the only cognate sets that Sutton provides for this vowel correspondence. Nonetheless, it is clear that the vowels in the “older brother” set do not match the several well-attested sets that yield Sutton’s PKT *a, illustrated above by “ear” in Table III.

Table IV. Kiowa-Tanoan 'willow, nest'

Language	Kiowa	RG Tewa	Arizona Tewa	Taos	Picuris	Southern Tiwa	Towa	PKT
willow, nest	zê·ba 'arrow'(?)	yą́ŋ	hyąŋ	ʔia-łɔ	ʔi-ła	ʔia-ła	zæ̂	*h^{j}a(C) *g^{j}i(b)

In all of the languages except Kiowa and Towa, the KT word for 'older brother' may involve a reduplication, so there is a high probability of secondary developments involving vocalic assimilation (as is obvious in the Tiwa words). The Kiowa and Towa forms appear to be compounds (the canonical lexical item in Kiowa-Tanoan languages has the shape CV or CVC). Better understanding of the effects of these morphological processes may clarify the vocalism of this set. However, in summary, while these forms look like they should be cognate, the set cannot be regarded as secure (at least as a genetically-motivated unit) at the present state of our knowledge. The most careful reconstruction thus far, Sutton's *pipV, does not resemble PUA *paʔci. In spite of the apparent case of 'majority rule', it is unlikely that the first vowel reflects PKT *a.

2.3. 'Younger brother'

For the second set in Table II, 'younger brother' Whorf and Trager (1937:622, no. 43) reconstructed "Proto-Tanoan" *p'o and PUA *poni, *po. For Tanoan they included the Taos, Southern Tiwa, and Towa sets, observing that Towa initial plain-release /p/ is unlawful; it should be glottalized. As mentioned above, Hale (1962) included this Towa form with his 'elder brother' set.

The 'younger brother' words appear to be compounds, with the second syllable being a diminutive suffix from the word for "child." The vowels match the correspondence Picuris /o/, Southern Tiwa /u/ and Towa /ɨ/ documented by Sutton (2014:529) for his PKT *yu, 'child, diminutive', shown in Table V.

Table V. Kiowa-Tanoan 'child, DIMINUTIVE'

Language	Kiowa	RG Tewa	Arizona Tewa	Taos	Picuris	Southern Tiwa	Towa	PKT
child, DIMINUTIVE	ʔí·	ʔe·	ʔe·	ʔu	ʔo	ʔu	-ɨ (?)	*yu (?) *wi(?)

While we have only Tiwa and Towa cognates, the vowel of the first syllable in "younger brother" is apparently again Sutton's PKT *i, with the same correspondences as in the first vowel of the "elder brother" series. However, instead of plain unreleased /p/ seen in the 'elder brother' words, these words have glottalized p, so they are not the same root, although they have the same vowels. The stem-final /y/ of the Tiwa forms may reflect a PKT velar *K (Sutton 2014:711, 713, 715, 720).

The initial plain-release /p/ in Tewa is a serious problem; we expect /p'/. It is possible that this /p/ is an 'ablaut variant' of /p'/, but if this is the case it would be a unique example (Sutton 2014:461). Sutton (2014:599) does observe that exceptions to regular developments of laryngeal states usually appear before vowels derived from PKT *i, as is probably the case here. Nonetheless, the Tewa form is not a lawful correspondent, and, as we will see, it appears to be a member of a different set of cognates.

While Hale (1962) included problematic Towa *pétɨ́* 'younger brother' with the 'elder brother' set with plain-release /p/, the second consonant /t/ and the apparent reflex of the diminutive suffix do not fit there. The 'elder brother' resemblances in Table II include Rio Grande Tewa paʔrê· 'older sibling'. While this form was included in Whorf and Trager's set no. 38 for 'older brother', Sutton (2014) rejects it as non-correspondent. However, the /r/ in *paʔrê·* corresponds lawfully to the /t/ of Towa *pétɨ*. Regular intervocalic voicing in Tewa (Sutton 2014:689) yields pre-Tewa /d/, which becomes /r/; see examples of Tewa /r/ from PKT *t# in Sutton 2014:739)). Furthermore, the vowels in the second syllable are also correspondent (as in the set in Table V). Thus this pair of words yields a third set for 'brother'. If the final vowels are suffixes, the stem is PKT *pit, although, as Sutton (2014:754) points out, the status of possible coda consonants, versus other analyses, remains a major unsolved question in Kiowa-Tanoan. The second syllable of these words is probably once again the diminutive suffix from "child", seen in Table V. A revised table for the 'brother' words showing this adjustment appears in Table VI.

Table VI: Kiowa-Tanoan 'brother', revised

Language	Kiowa	Rio Grande Tewa	Arizona Tewa	Taos Northern Tiwa	Picuris Northern Tiwa	Southern Tiwa	Towa	PKT
Older Brother	pa·bî· (B (ms))	pahpá·- 'Great' (in GGF'(Sutton 2014:601)		pɔpɔ-	papa-	papa-	pǽ·pɨ́	*pipV
Younger Brother				p'o̦y-	p'ay-'o	p'ay-'u		*p'iK-yu
Brother		paʔrê· 'older sibling'					pét-ɨ́ (yB)	*pit-yu

*K in *p'iK-yu stands for 'some velar stop'

The PKT reconstruction *pit can be compared compared to the consonant-final reflexes of "younger brother" which appear in Uto-Aztecan in the Takic languages and Hopi, as seen in Table VII. This reconstruction actually improves the similarities between the two language groups for "younger brother" compared to Whorf and Trager's set 43, for which they give "Proto-Tanoan" *po(-y).

Table VII. Takic and Hopi "younger brother"

Language	Luiseno	Serrano	Gabrielino	Hopi	PUA
younger brother	*-peet*	*-pöit*	*-pe:'ec*	*tɨpko* < **tɨ-poko* 'younger sibling'	*po(ʔot)

2.4. "Older Sister"

Davis (1989:370, no. 42) reconstructed PKT *ka, *ko 'mother' and compared these to his PUA *ka 'grandmother' (actually 'father's parent'). However, this comparison is spurious, because the Towa form turns out not to be a lawful cognate in the resemblant set for 'Older Sister 1', in Table II. Furthermore, Kiowa *kò·k-oy* (mother, mother's sister) does not correspond to the other forms with /o/, but instead with the /a/ set in 'Older Sister 2'. The vowel correspondence Kiowa /o/, Rio Grande Tewa /a/, Arizona Tewa /a/, Taos /a/, Picuris /ia/, and Southern Tiwa /e/ is supported by other sets, and Sutton (2014:553) reconstructs this correspondence as *i in PKT *qi(C) 'mother'. This form resembles Proto-Uto-Aztecan *yɨ(C) 'mother' not at all. However, it does resemble PUA *koʔci 'older sister'. In the ancestral Dravidian form of Kiowa-Tanoan kinship systems, the word for 'mother' would have meant as well 'mother's sister'. Intergenerational equation yields terms for female parallel cousins, as in Tewa, that mean "little mother's sister". Since following crossness siblings and parallel cousins are equivalent, there is an obvious path of semantic change from 'mother' to 'older sister'.

In summary, the "Sister" resemblances in Table II should be revised as shown in Table VIII.

Table VIII. Kiowa-Tanoan "Sister", revised

Language	Kiowa	Rio Grande Tewa	Arizona Tewa	Taos Northern Tiwa	Picuris Northern Tiwa	Southern Tiwa	Towa	PKT
Mother, Mother's Sister, Sister	kò·k-oy 'mother, mother's sister'	káyê· (MZ)	kà·ká (oZ) káyê· (MoZ)	kayu- (MZ) ka (M)	kia- (M)	keʔi 'M' keču (MZ)		*qi(C)
Older Sister		ko'ô· (FBD, MZD) (FoZ (Santa Clara, Dozier 1955))	kô·ʔo (MyZ)				kô· (oZ)	
Younger Sister	p'í· 'sister (ws)'	ʔayų 'girl'	ʔa·yú	p'ayu	p'ąyʔo	p'ečų	p'ǽ·ʔe	*p'i-yV

The words in the resemblant set 'older sister' in Tewa and Towa in Table VII unfortunately cannot be shown to be cognates. In Sutton's extensive survey of correspondence sets for Kiowa-Tanoan vowels, there is no case where Towa /o/ corresponds to Tewa /o/. Instead, Towa /o/ corresponds to Tewa /a/, as in Table III above, and this relationship is stable even after PKT labial consonants (Sutton 2014:560). Thus Towa *kô·* ‘older sister’, temptingly resemblant to PUA *koʔci as seen in Table I, at this time has no Kiowa-Tanoan etymology.

2.5. “Younger Sister”

The final KT resemblant set in the sibling terminology, for ‘sister, younger sister, girl’, is considered a good cognate set by Sutton. However, he provides two different reconstructions, PKT *p’i(yV) (2014:551) and PKT *p’ig^{j}V (2014:603). Nonetheless, the set is a promising one. The second syllable superficially resembles the “diminutive” set in Table V, but it is not the same element, because the Tewa and Towa vowels are not correspondent in that set. The set does share the glottalized *p’ with the set for ‘younger brother’, and the roots may be related (several of the languages in both families have ‘younger sibling’ terms that do not distinguish sex).

2.6. Revised Resemblances: Proto-Kiowa-Tanoan (?) and Proto-Uto-Aztecan.

In Table I, a tempting set of resemblances between sibling terms in Towa, one of the Kiowa-Tanoan languages, and Proto-Uto-Aztecan, was illustrated. Table IX revisits these lexical sets, using tentative reconstructions for Proto-Kiowa-Tanoan proposed by Sutton (2014), except for ‘brother (2)’, which is my own proposal.

Table IX. Proto-Kiowa-Tanoan and Proto-Uto-Aztecan Sibling Terms

Language	Proto-Kiowa-Tanoan	Proto-Uto-Aztecan
brother (1) (older?)	*pipV	*paʔci (oB)
brother (2)	*pitV	*poni, *po(ʔot) (yB)
brother (3) (younger?)	*p’iK-yu (Tiwa only)	(Hopi -poko- ?)
sister (1) (older?)	*qi(C) (M)	*koʔci (oZ)
sister (2) (younger?)	*p’i(yV) ~ *p’ig^{j}V (yZ)	*pini, *pi(ʔit)

While we have unearthed new KT-UA similarities in the coda consonants of ‘brother 2’ and ‘brother 3’, overall the resemblances in Table IX are surely less compelling than those in Table I, where we looked only at Towa. In the first place, under Sutton’s model of Kiowa-Tanoan vocalism, where PKT has only three oral vowels *i, *u, *a, the first-syllable vowels are no longer resemblant, except in ‘younger sister’. The *labial ~ *velar alternation between ‘older brother’ and ‘older sister’ remains, but the close semantic resemblance is lost, since the PKT root (for which Sutton reconstructs *q, not *k) is not obviously a sibling term; in the daughter languages it is a term for ‘mother, mother’s sister’ or ‘father’s sister’.

It looks as though Proto-Kiowa-Tanoan may have had two roots for ‘sibling’, one with initial *pi..., and the other with initial *p’i..., the latter labeling the younger sibling in most of the daughter languages. In contrast, Uto-Aztecan has four different roots. In summary, the sibling terms are less similar when we compare the proto-languages than when we compare PUA with the Kiowa-Tanoan daughters. Other kin terms are not helpful; as noted above, Davis’s resemblant set (19) (1989:369) for ‘aunt, sister’ is almost certainly spurious. Whorf and Trager’s ‘grandmother’ comparison (1937:621, no. 29), based on a word that appears only in Taos Northern Tiwa, is also very weak. In summary, the evidence presented here suggests that at the very least any comparison between these items will require that Whorf and Trager’s (1937) and Davis’s (1989) “reconstructions” of the PKT vowels must be thoroughly revised. It is unlikely that Sutton’s (2014) reconstruction of those vowels will be the last word, but he has shown clearly that the vowels in many of the sets used by Whorf and Trager and Davis are simply not regularly correspondent.

3.0. Beyond Uto-Aztecan and Kiowa-Tanoan

Zuni, spoken in western New Mexico and usually considered an isolate (Hill 2007) (although Sapir (1929) suggested that it might belong with Aztec-Tanoan), also has a labial/velar initial-stop alternation in the older sibling terms, with *papa* 'older brother' and *kawu* 'older sister' (the terms for younger siblings have no resemblance to the Kiowa-Tanoan and Uto-Aztecan forms). This raises the question as to whether the p-k alternation reflects an old areal set of nursery words, a domain in which terms for older siblings (who are often caretakers of their juniors) often fall. However, Keresan, the other major language of the southwestern pueblos, has no such alternation. Regarding alternations such as p/k and the Kiowa-Tanoan p/p' as possibly marking relative seniority, Campbell and Poser (2008:214) cite the work of Nichols (2003) who suggests that such "phonosymbolic resonance properties" that create parallelisms in kin terms, pronouns, counting, and deictic sets such as spatially and directionally differentiated demonstratives, are typically secondary developments, and are disfavored as historical evidence.

Finally, brief mention should be made of Oto-Manguean, suggested by Greenberg (1987) as the third member of his "Central Amerind" family along with Uto-Aztecan and Kiowa-Tanoan. There is not much joy to be found among the Oto-Manguean sibling terms. In the first place, Proto-Oto-Manguean is reconstructed (e.g. Rensch 1976, Kaufman 1990) as lacking the bilabial stop *p, and its 'brother' terms therefore look very different from the p-initial words in Kiowa-Tanoan and Uto-Aztecan. Merrifield (1981:21) reconstructs Proto-Oto-Manguean as distinguishing seniority only for same-sex siblings. He reconstructs **tu, **nu, **yu 'man's older brother' versus **kwaHn, **kaHn for 'woman's older sister". The initial (labio-)velar stop in the 'older sister' reconstructions resemble the initial stop in PUA *koʔci, but this is non-correspondent for Greenberg (1987:124), who held that POM *kw corresponded, not with Uto-Aztecan velars, but with *p, which in those languages is found in the "brother" words. Greenberg (1987:125) and Hage (2011) thought that POM **kwaHn corresponded with Uto-Aztecan *pa 'father's sister' (probably *pahaw[2]).

3.0 Conclusions

Kiowa-Tanoan and Uto-Aztecan share enough similarities that most people who have worked on the two language families have considered the hypothesis that they may share a common ancestor as entirely reasonable. However, they also provide a cautionary tale. I was very struck by the apparent parallelisms in both consonantal and vocalic alternations in the sibling terms shown in Table I, and thought I might have stumbled on a site that would give new support to the "Aztec-Tanoan" hypothesis. However, as I have tried to show here, closer examination of the relationships among the Kiowa-Tanoan terms largely erased the parallelisms with Uto-Aztecan that were hinted at by surface forms in the modern languages. This review supports Sutton's (2014) demonstration that many of the sets that have been considered low-hanging fruit in work on the Aztec-Tanoan hypothesis are nothing of the kind. Furthermore, this exercise has provided yet another lesson in the importance of undertaking reconstructions of daughter families prior to making long-range comparison, as opposed to cherry-picking promising resemblances in daughter languages. It is often suggested that parallelisms in lexical systems, ranging from the classic shared aberrancies in paradigms to parallel alternations in deictic terms and kin terms, are more resistant to change than are similarities in isolated lexical items. However, in this case the apparent parallelisms between Towa and Uto-Aztecan turned out to be the chance results of a number of secondary developments in Towa.

---

[2] Stubbs (2011) reconstructs *pahwa. However, a crucial fact about this word is that in Cupeño, a Takic language with an unusual stress system, the cognate is a "stressless" root, *-paha.* Mamet (2011:256) shows that Cupeño stressless roots of shape CVCV correspond regularly to roots with second-syllable stress in other languages. These words, in turn, can be reconstructed with coda consonants in the stressed syllables (Manaster Ramer 1993). Thus PUA **pahaw* is preferable to Stubbs' proposal.

It is, of course, possible that Sutton's (2014) theory of Kiowa-Tanoan vocalism that I have followed here will turn out to be misguided, and justification will be found for more transparent reconstructions of vowels in the resemblant sets I have discussed, of the type that led Sapir, Whorf and Trager, Davis, and Greenberg to understand "Aztec-Tanoan" as an uncontroversial clade and hardly an example of long-range comparison at all. However, I hope to have shown that ample grounds for controversy remain.

REFERENCES CITED

Campbell, Lyle. 1997. *American Indian Languages: The Historical Linguistics of Native America.* Oxford Studies in Anthropological Linguistics 4. Oxford and New York: Oxford University Press.

Campbell, Lyle and William J. Poser. 2008. *Historical Linguistic History and Method.* New York and Cambridge: Cambridge University Press.

Davis, Irvine. 1989. A new look at Aztec-Tanoan. In *General and Amerindian Linguistics: In Memory of Stanley Newman,* eds. Mary Ritchie Key and Henry Hoenigswald, pp. 365-79. Berlin: Mouton de Gruyter.

Dozier, Edward P. 1955. Kinship and linguistic change among the Arizona Tewa. *International Journal of American Linguistics* 21:242-257.

Greenberg, Joseph H. 1987. *Language in the Americas.* Stanford, CA: Stanford University Press.

Hage, Per. 2011. Proto-Central Amerind *Pa: "Father's Sister" = "Mother-in-Law". In Doug Jones and Bojka Milicic (eds.), *Kinship, Language, and Prehistory: Per Hage and the Renaissance in Kinship Studies,* pp. 133-140. Salt Lake City: University of Utah Press.

______, Bojka Milicic, Mauricio Mixco, and Michael J. P. Nichols. 2004. The Proto-Numic kinship system. *Journal of Anthropological Research* 60:359-377.

Hale, Kenneth L. 1962. Jemez and Kiowa correspondences in reference to Kiowa-Tanoan. *International Journal of American Linguistics* 28:1-5.

________. 1967. Toward a reconstruction of Kiowa-Tanoan phonology. *International Journal of American Linguistics* 33:111-20.

Harrington, John P. 1928. *Vocabulary of the Kiowa Language.* Bureau of American Ethnology Bulletin 84. Washington, D.C.: Smithsonian Institution.

Hill, Jane H. 2007. The Zuni language in southwestern areal context. In *Zuni Origins: Anthropological Approaches on Multiple Americanist and Southwestern Scales*, eds. David A. Gregory and David R. Wilcox, pp. 22-38. Tucson: University of Arizona Press.

_______. 2005. The historical linguistics of kin-term skewing in Puebloan languages. To appear in *Puebloan Societies,* eds. John Ware and Peter Whiteley. Santa Fe and Albuquerque: SAR Press and University of New Mexico Press.

Kaufman, Terrence. 1990. Early Otomanguean homelands and cultures: Some premature hypotheses. *University of Pittsburgh Working Papers in Linguistics* 1:91–136.

Mamet, Ingo. 2011. Cupeño stress shift: Diachronic perspectives. *International Journal of American Linguistics* 77:247-83.

Manaster Ramer, Alexis. 1993. Blood, tears, and murder: The evidence for Proto-Uto-Aztecan syllable-final consonants. In *Historical Linguistics 1991: Papers from the Tenth International Conference on Historical Linguistics,* ed. Jaap van Marle, pp. 199-209. Amsterdam and Philadelphia: John Benjamins.

Martinez, Esther. 1982. *San Juan Pueblo Tewa Dictionary*. San Juan Pueblo, NM: San Juan Pueblo Bilingual Program.

Merrifield, William R. 1981. *Proto Otomanguean Kinship.* Dallas, TX: International Museum of Cultures.

Nichols, Johanna. 2003. Diversity and stability in language. In *The Handbook of Historical Linguistics*, ed. Brian D. Joseph and Richard D. Janda, 2083-310. Oxford: Blackwell.

Rensch, Calvin R. 1976. *Comparative Otomanguean Phonology. Language Science Monographs*, vol. 14. Indiana University Press, Bloomington.

Sapir, Edward. 1929. Central and North American languages. *Encyclopedia Britannica,* 14th Edition, 5: 138-41 (reprinted 1990 in *The Collected Works of Edward Sapir, vol. 1: American Indian Languages,* ed. William Bright, pp. 95-104. Berlin: Mouton de Gruyter)

Shaul, David L. 1985. Azteco-Tanoan ***-r/l-. *International Journal of American Linguistics* 51:584-86.

Sprott, Robert W. 1992. *Jemez Syntax.* University of Chicago Ph.D. Dissertation.

Stubbs, Brian D. 2011. *Uto-Aztecan: A Comparative Vocabulary.* Flower Mound, TX: Shumway Family History Services and Blanding, UT: Rocky Mountain Books and Productions.

Sutton, Logan. 2014. *Kiowa-Tanoan: A Synchronic and Diachronic Study.* University of New Mexico Ph.D. Dissertation.

Trager, George L. 1943. The kinship and status terms of the Tiwa languages. *American Anthropologist* 45:557-571.

Whiteley, Peter. 2015. From Keresan bridge to Tewa flyover: New clues about Pueblo social formations. To appear in *Puebloan Societies,* eds. John Ware and Peter Whiteley. Santa Fe and Albuquerque: SAR Press and University of New Mexico Press.

Whorf, B. L. and G. L. Trager. 1937. The relationship of Uto-Aztecan and Tanoan. *American Anthropologist* 39:602-24.

Yumitani, Yukihiro. 1998. *A Phonology and Morphology of Jemez Towa.* University of Kansas Ph.D. Dissertation.

MOTHER TONGUE
Journal of the Association for the Study of Language in Prehistory • **Issue XX • 2015**
In Memory of Harold Crane Fleming (1926-2015)

A Universal Proto-Interjection System in Modern-Day Humans

Pierre J. Bancel,[1,2,*] John D. Bengtson[2,3] and Alain Matthey de l'Etang[1,2]

[1] Association d'études linguistiques et anthropologiques préhistoriques (Paris, France).[2] Association for the Study of Language in Prehistory (Cambridge, MA).[3] Evolution of Human Language Project (Santa Fe Institute, Santa Fe, NM).* Correspondence should be addressed to pierrejbancel@hotmail.com.

Abstract

We report here on the discovery of a universal phenomenon of human vocal communication, which is not articulate language. While its numerous semantic uses are subject to variation across languages and language families, several of its basic features and the recurrence of its different variants across languages point to a very ancient origin, certainly predating articulate speech, of which it may have been a precursor.

1. Presentation

Many a reader will start with incredulity upon learning that we claim to have discovered that *hum* interjections are universal in humans. "*Hmm*? Obviously it's universal!" This was indeed the first reaction of several of our informants, whether their maternal language was Yoruba, Bambara, Kipsigis, Mandarin, or Bikol. However, as far as we know, hums have never been described in detail, let alone subjected to a cross-linguistic study.

Although early evoked as a possible origin of human language (Condillac 1746: 169-82), interjections have always taken a far back seat in linguistic studies (Ameka 1992: 101). Moreover, most of the work devoted to them deals with words of the standard lexicon that may be used as interjections (e.g. *well*, *crap*), or with word-like interjections (e.g. *hello*, *gee*, *wow*). Interjections consisting in sounds that are not part of the phonetic inventory of the language they belong to – like English *tut-tut*, phonetically a series of dental clicks [ǀ ǀ] (Ameka 1992: 105-6) – have long been reported as curios, without, however, arousing much curiosity.

A nasal sound, used as an amazingly versatile interjection, appears in dictionaries under disguised forms, the most frequent of which are *hum* or *hm*, or their equivalent in non-Latin scripts, and we have found it in all of the 50-odd extremely diverse languages for which we have obtained data.

Semantically, its exclusive use to convey feelings and states of mind of the emitter makes it much closer to animal communication than to symbolic language, though with a degree of semantic variety and refinement that has not been described for any animal vocalization. Phonetically, its lack of use of the supraglottal articulators (tongue, lips), even in its complex variants, is also close to animal grunts, but it also shares with speech and the first stages of babies' vocalizations (Oller 2000: 15 (table 1.3), 63, and *passim*) its particular, speech-like phonation, a "modal voice" characterized by "regular vibrations of the vocal folds at any frequency within the speaker's normal range" (Ladefoged & Maddieson 1996: 48, Table 3.2).

Its universality, its functional restriction to express feelings and its phonetic nature halfway between animal vocalizations and human words allow one to hypothesize that it may have appeared before articulate speech, and was a first step on the way that led to it.

Moreover, this sound is also used in complex interjections, made of fixed sequences of sounds. One at least of these articulate interjections also seems to be universal, and might testify to another intermediate stage between a grunting system using speech-like phonation and the emergence of the first word.

2. Material and methods

Common interjections consist in or comprise an entirely nasal sound – produced by a normal, speech-like vibration of the vocal cords while the lips are kept closed. As a first approximation, one may transcribe this sound as *mmm*, as it essentially is like the internal part of the nasalized labial stop consonant [m], i.e. its part during closure of the oral tract at lips.

It is not considered a sound of articulate language (which, as it appears, is not perfectly fair), and consequently the International Phonetic Alphabet (IPA) does not provide a symbol to represent it. In order to distinguish it from consonant [m] as it is used in articulate speech, we will provisionally represent it by]m̃[, between inverted brackets to remind the reader that it is a phonetic though not an IPA transcription and a redundantly nasalizing tilde]˜[to symbolize the permanent closure of lips. In this article, a tilde will consistently mark entirely nasal sounds, i.e. uttered with closed lips.

To the best of our knowledge, it is the first time that a sound specific to interjections is studied for itself cross-linguistically. Most linguistic studies devoted to interjections have studied the words representing them – which posed no problem for word-like interjections: in such cases, the sound of the interjection corresponds to the received reading of the written word (e.g. *hello* [həˈləʊ], *gee* [dʒiː], *wow* [waʊ]).

The present study, devoted to the sound]m̃[in interjections, is thus a pioneering one. As such, it is imperfect in several regards. First and foremost, in the absence of previous studies, not all the meanings and nuances it may express were apparent to us when we started, and even the most complete dictionary, namely the *Oxford English Dictionary*, appears in this regard to be highly lacunar in both the meanings covered and their structuration (see Table 1). Actually, we were far from expecting to discover so many meanings and functions of this sound, and have gradually become aware of their existence, including during the final steps of the redaction of the present paper. Some others still may remain to be discovered.

Our first goal was simply to document the use of this sound across languages and language families – initially, limiting ourselves to its meaning 'yum.' However, as we proceeded, we not only found that this sound was not lacking in any language submitted to enquiry, but furthermore pertained to a far richer communication system than we first thought, and also combined with other sounds to form complex, phonetically articulate interjections.

The gradual way this complexity appeared to us, while we did not always securely take note of its components in the few first languages where we noticed them, entails that we are not in a position to give statistical figures for each of its usages across languages of our sample. However, the sound investigated is lacking in none of them, and most of its uses are extremely widespread – each meaning is probably used in over 80% of languages, and several of them over 90%.

Also, in the case of interjections consisting in sounds differing from those of ordinary speech, the words used to represent them are written approximations which have acquired their own reading (e.g. *humph* [hʌmf]), and this reading sometimes has become in the oral language an interjection by itself, besides the original interjection it described. This adds another complication, and our interpretation of *humph*-like interjections, although independently suggested by three experienced linguists, two of whom are native speakers of American English (see note 3 below), will perhaps have to be modified or better integrated in the galaxy of]m̃[interjections that seems to emerge here.

However, we found it important not to content ourselves with reporting the universality of this sound, but also to describe as best we could both the semantic variety and phonetic complexity of its uses, so that further studies which it undoubtedly deserves may start on a more precise footing than ours. In this regard, let us note that the interjections mentioned hereafter are often accompanied by specific facial expressions, which appear to be nearly automatically linked to them – a fact that was spontaneously mentioned to us by several informants, both with and without anthropological training. These facial expressions are not considered here but should be systematically studied as well.

For practical reasons, fieldwork was essentially conducted in New York City and Paris, with informants all bilingual in English or French, many of them multilingual. This may raise the question of possible influence from the other languages they spoke. However, we have taken care that the languages we investigated were the informants' respective mother tongues, or at least, in a few cases, a language they had an intimate knowledge of, having learned it in early childhood as part of their familial environment, in the original area where the concerned language is spoken. Informants were asked to reorient themselves mentally in the context of this familial language, in order to avoid as much as possible contamination from the other languages/cultures they had been in contact with.

Moreover, our study bears on usages which are part of the most basic conversational abilities, which every normal speaker possesses – in contrast to, say, vernacular names of medicines, religious practices, or wild animals or plants, which are often unknown or very uncertainly known to speakers outside the area where the language is originally spoken. Consequently, this particular condition of our investigation is not likely to have significantly biased the results.

For four languages – namely, Swiss German, Cherokee, Irish and Kashmiri –, interviews were conducted with native speakers through videoconference on Skype. For three other languages – namely, Naron, Yupik and Diidxa Zá –, field anthropologists contributed data drawn from native speakers living in the original area where the concerned languages are spoken.

In order for the reader to get a clearer idea of the matter at stake, we will examine hums beginning with the English language.

3. The nasal sound]m̃[in English interjections

3.1. The nasal sound]m̃[in English simple interjections

Several written English words refer to interjections consisting in a nasal sound]m̃[. Table 1 displays several of them, with their definitions and etymology, drawn from the *Oxford English Dictionary*, which offers by far the most extensive descriptions. For the purpose of the present study, we will essentially consider the interjections rendered by the English words *hum*, *h'm*, *hm*, *mm*, *um* and *yum*.

3.2. Meanings and functions of English *hum* interjections

There is a wide overlap in the respective definitions of *hum*, *h'm*, *hm*, *mm* and *um*, which essentially seem to be graphic variants of the same interjections, while *yum* is semantically specialized. And the variety of meanings indicated by the *OED* under entries *hum*, *mm* and *um* (*h'm*, *hm* are considered variants of *hum* and are not defined independently) is amazing – even though it is far from exhaustive. Besides those mentioned in the definitions given in Table 1, like 'hesitation,' 'embarrassment,' 'dissatisfaction,' 'dissent,' 'approbation,' 'satisfaction,' 'doubt,' or 'gustatory satisfaction,']m̃[sounds also may express 'attention to the speaker,' 'drawing attention to something,' 'irony,' 'reflection,' 'figuring out,' 'satisfaction,' and 'annoyance,' and there may be still others which we have not formally identified.

Table 1. English words referring to simple interjections consisting in a]m̃[sound

- ***hum*** *interjection* (attested 1598) Pronunciation: /həm/. An inarticulate exclamation uttered with the lips closed, either in a pause of hesitation or embarrassment, or as expressing slight dissatisfaction, dissent, etc. *<http://www.oed.com/view/Entry/89260>*
- ***mm*** *interjection and noun* (attested 1911) Pronunciation: /m/ Etymology: Imitative. 1. Expressing satisfaction, approval, or assent; 2. Expressing hesitation, reflection, or inarticulate interrogation. *<http://www.oed.com/view/Entry/120416>*
- ***um*** *interjection* (attested 1672) Pronunciation: /(ə)m/ Etymology: Imitative. Used to indicate: 1. Hesitating or inarticulate utterance on the part of a speaker; 2. Hesitation or doubt in replying to another; 3. Assent. *<http://www.oed.com/view/Entry/208749>*
- ***h'm*** or ***hm*** *interjection* (attested 1854) *[No pronunciation, etymology, or definition; cross-reference is made to* ***hum*** *and* ***hem****]* *<http://www.oed.com/view/Entry/87380>*
- ***yum*** *interjection* (attested 1878) Pronunciation: /jʌm/ Etymology: echoic. An exclamation of pleasurable anticipation, with implication of sensual or gustatory satisfaction; frequently reduplicated as *yum-yum*, etc. *<http://www.oed.com/view/Entry/232558>*

This table lists entries and definitions, quoted with permission from the *Oxford English Dictionary*, of words referring to interjections consisting in a]m̃[sound. The pronunciations in IPA are those of the written words, not the interjections themselves. This appears most clearly in the definition of *hum*: "an inarticulate exclamation uttered with the lips closed" is obviously incompatible with the phonetic transcription /həm/ given by the *OED*. *Hum*, *h'm*, *hm*, *um* and *mm* clearly are graphic variants of the same interjection, endowed with multiple meanings, only part of which are reported in the *OED*'s definitions. To them must be added *yum*, according to the *OED* from an "echoic" origin which is left undetermined. But, while the word *yum* itself has become a widely used interjection, it nevertheless represents a particular form of]m̃[. The most direct way to express, in a familiar setting, that what one is having, food or drink, is deliciously tasteful, is with a sound]m̃m̃(m̃)[, of long or super-long duration with a rising intonation. It is indeed the sound "echoed" by *yum*. All six English words *hum*, *mm*, *um*, *h'm*, *hm* and *yum* thus refer to interjections consisting in the same sound]m̃[.

However, all these diverse meanings fall in the field of the emitter's feelings or states of mind. None may be used to refer to an external object or event, a limitation they share with most if not all animal vocalizations. The only possible documented exceptions might be the different alarm calls of vervets (Seyfarth et al. 1980) and other monkey species, each of which is specialized for a different predator and hence elicits a different fleeing reaction. However, even these alarm calls fundamentally express a feeling of the emitter, namely fear.

Another consistent semantic quality of *hum* ~ *mm* ~ *um* interjections is a noncommittal feature which is captured by *OED* definitions such as "expressing slight dissatisfaction, dissent" or "expression of [...] mild surprise or dissent." This quality, also present with positive meanings, makes hums the ball bearings and shock absorbers of informal conversation. Even though most of the time they go nearly unnoticed, at least at a conscious level, they are extremely frequent. They are very often emitted by the hearer, conveying to the speaker, without interrupting the speech turn, what his interlocutor thinks or feels about what he is saying at a particular moment.

As a consequence, most hums are not part of a proper speech turn, and only are an attenuated echo of another's words, hence their evanescent nature – only their particular color allows the speaker to tune his discourse to the feelings of listeners, often without being clearly conscious of it himself. Once one has become aware of their existence, it is really amazing to observe how often oneself and others do indeed hum.

But for all their utility in conversation, hums do not strictly depend on it. They also may be uttered in response to someone's acts, again outside any proper speech turn, guiding the ongoing action without interrupting it.

Finally, a particular use of]m̃[sounds seems to us extremely important. It may be uttered when alone, or otherwise only with extremely familiar people, and expresses deep physical and psychic relaxation and well-being, typically as a long or super-long]m̃m̃(m̃)[on a steady pitch with a marked fall at the end. This apparently spontaneous sound may be suppressed in many social settings but is spontaneous and nearly irrepressible in some others.

We did not make a complete survey of mammalian vocalizations studies, but we nevertheless may point to interesting parallels. Nasal sounds have been observed in chimps as signals of appeasement (Goodall 1986: fig. 6.2 p. 127; see also p. 131). A specialist on American black bears, who has maintained continuous relationships with a female bear he raised as an orphan cub and reintroduced into the wild, says that she greets him with a nasal grunt to signal she has no aggressive intention (Ben Kilham, personal communication; see also Kilham & Gray 2002).

3.3. Phonetic differentiation of meanings in English *hum* interjections

It is not common, and at first thought hardly conceivable, that a given sign may express 'approbation,' 'dissent' and 'doubt' as well as 'satisfaction' and 'dissatisfaction' – imagine if the word *mouse* might mean either 'mouse,' 'whale,' 'mammal,' 'animate,' or 'inanimate,' according to utterances! How does one know which of these meanings is intended by the speaker?

This question goes unnoticed by the *OED*, let alone its answer. Even though it is not possible yet to fully explain the working of *hum* interjections, some preliminary indications may be given here. It seems to rely on a complex combination of pitch (the perceived frequency of the vocal cords' vibration), loudness (the perceived amount of acoustic energy), and length (the duration of the sound). These features are imbricated in a way which is rather difficult to understand and does not seem to have been the object of much study – if at all: literature on universals of intonation (itself a complex feature involving pitch and duration) seems to deal only with complex sentences (Lieberman 1967, Hirst & Di Cristo 1998, Ladd 2001).

Moreover, the variations of these features obey rules that cannot be reduced to those described for articulate speech. Notably,]m̃[sounds cannot be considered to be mere carriers of intonation: for instance, a hum expressing annoyance seems to crucially rely on the loudness contour of the corresponding]m̃[sound. Explaining these variations in detail will require further investigations by phoneticians, involving several speakers for each language investigated in order to assess the extent of individual variations.

3.4. A complex interjection comprising a nasal sound]m̃[in English

Furthermore, the]m̃[sound is not only uttered alone, as an inarticulate interjection. In English, it is found in several interjections referring to complex phonetic sequences (Table 2).

Table 2. English words referring to complex interjections comprising a]m̃[sound

mph *interjection* (attested 1860; now rare) Pronunciation: /(ə)mh/, /(h)m/ Etymology: imitative (see *humph, umph*). Expressing disapproval, doubt, or dissatisfaction. *<http://www.oed.com/view/Entry/123112>*

umph *interjection and noun* (attested 1568) Pronunciation: /(ə)mh/ Etymology: imitative. An inarticulate sound, expressive of hesitation, doubt, or dissatisfaction. *<http://www.oed.com/view/Entry/208892>*

humph *interjection and noun* (attested 1681) Pronunciation: /hʌmf/ Etymology: imitative. The inarticulate syllable *h'mf!*, used as a) a signal; b) an expression of doubt or dissatisfaction. Also a noun, as a name for this utterance. *<http://www.oed.com/view/Entry/89435>*

Here are presented some of the words, quoted with permission from the *OED*, referring to complex interjections comprising a]m̃[sound.

These three interjections have apparently much in common in both their respective spellings and definitions. They are semantically near equivalents, and cover a subset of the meanings expressed by]m̃[sounds, exclusively negative feelings – disapproval, doubt, hesitation or dissatisfaction. In this regard, they may be considered phonetically expanded variants of a particular subset of *hum* interjections.

The original phonetic nature of the interjections they refer to is not indicated by the *OED*, which only describes the reading of the written words.[1] They all contain a]m̃[sound and also share an unvoiced nasal expiration, rendered, in the English orthography, by their common final *-ph*. From the articulatory viewpoint, it may be considered a nasal equivalent of oral [h]; both are produced by the airflow expelled from lungs through the open glottis, with no gesture of supraglottal articulators to modify it. From the auditory viewpoint, however, it is very different. While an oral [h] produces turbulences of the airflow at the glottis, what is heard in its nasal equivalent is turbulences at the nostrils, producing a sound sharing auditory similarities with both [h] and [f].[2] This sound, which we will provisionally transcribe as]h̃[, is also disregarded by the IPA (actually, the IPA does not provide a transcription for any entirely nasal sound). Its particular auditory quality may have been the source, in the written words *mph*, *umph* and *humph*, of the final *-ph*, reading [f] though with (visually) a [h] coloration.

---

[1] The following interpretation of the sounds *mph*, *umph* and *humph* refer to was independently suggested to us by Mathias Arminjon (French Translation Service, United Nations) and Peter MacNeilage (University of Texas at Austin), and confirmed by Sydney Lamb (Rice University).

[2] Actually, the unvoiced fricatives [h] and [f] share several auditory features, with the consequence that [h] is a common historical outcome of a former [f].

There also may be two onsets added to these interjections. A basic onset consists of an initial nasal glottal stop]ʔ̃-[, giving]ʔ̃m̃h̃[. This initial]ʔ̃[may itself be preceded by a nasal]h̃[(perhaps rendered by the initial *h-* in *hum* and *humph*); the whole sequence *humph* would thus be transcribed as]h̃ʔ̃m̃h̃[.

It seems that no onset]h̃-[without a following glottal stop]-ʔ̃-[is possible; it may result from a physiological constraint bearing on the transition between]h̃-[and]-m̃[, and imposing an intermediate glottal stop]-ʔ̃-[. Semantically, forms with a glottal stop]ʔ̃-[may appear slightly more assertive than those without one.

It is to be noted that forms with a non-negative meaning do not take the final]-h̃[. This may indicate that this final]-h̃[intrinsically bears a negative meaning, and might be related to interjections consisting in a simple expiration, either through the nose (]h̃h̃[) or the lips (the bilabial voiceless fricative [ɸɸ]), in the latter case optionally preceded by a [p-] onset ([pɸɸ]), rendered by a number of English words (see in the *OED* interjections *faugh*, *pah*, *phah*, *pew*, *phew*, *phoo*, *phooey*, *poh*, *poof*, *pooh*, *puff*), expressing "cursory dismissal, contemptuous rejection, disagreement, reproach, disapproval, abhorrence, disdain, or disgust," as well as, in a seemingly recent metaphorical use, "relief" – of having escaped something unpleasant.

Conversely, both onsets]ʔ̃-[and]h̃ʔ̃-[are not restricted to the expression of negative feelings. All the other meanings covered by simple]m̃[sounds (those expressing approbation, surprise, reflection, thinking about, among others) can appear as either]ʔ̃m̃[or]h̃ʔ̃m̃[.

Moreover, all]m̃[,]ʔ̃m̃[and]h̃ʔ̃m̃[forms may be reduplicated, giving the simple-syllable form]m̃-m̃[, or a sequence with either of the two onsets, namely]ʔ̃m̃-ʔ̃m̃[and]h̃ʔ̃m̃-h̃ʔ̃m̃[. When reduplicated, the intonational contour of the]m̃[form is distributed over the two syllables.

Finally, the definition of *humph* by the OED as an "inarticulate syllable h'mf" is inadequate. A syllable is a unit of organization of articulate speech, so "inarticulate syllable" is a contradiction in terms. The sequence *h'mf*]h̃ʔ̃m̃h̃[is a complex syllable, whose peak is a]m̃[sound. However, having a nasal sound as its syllable peak does not make *h'mf* inarticulate any more than their second syllable peaks [n̩] or [m̩] make the English words *button* [bʌtn̩] or *bottom* [bɔtm̩] "inarticulate words."

Several features of both simple and complex]m̃[interjections make them likely candidates to be a very old system of communication, anterior to articulate speech. But directly extrapolating from the English language to remote prehistory would be of little significance. Therefore, we have to look for hums in other languages.

4. Universal nasal interjections in modern humans

4.1. Simple]m̃[interjections in other written languages

Words referring to simple interjections analogous to English *hum* are found in many written languages. The sample list presented in Table 3 is by no means exhaustive, and results from a cursory investigation in dictionaries easily available to the authors. It only reports parallels to English *hum~um~mm*, leaving aside the also widespread parallels of *yum*.

Table 3. *Hum*-like words in written languages other than English

German: ***hum*** *interjection* A sound expressing thought, reservation, doubt; also sign of fretfulness.
(Grimm & Grimm 1838-1971)

Swedish: ***hm, hum*** *interjection* (attested 1618) Rendering various nasal sounds uttered when words are not immediately available to the speaker to express his thought; expressing indecision, doubtful assent, deliberation, disapproval, contempt, surprise; used to attract attention.
(Svenska Akademien no date)

French: ***hum*** *interjection* (attested 1680) Marking a distance from (the discourse of) the interlocutor; introducing a rectification of the interlocutor's discourse; introducing a self-addressed discourse; marking embarrassment; used to ask discreetly to take the speech turn.
(Imbs & Quemada 1971-1994)

Italian: ***uhm*** *interjection* (attested 1879) Expresses doubt, uncertainty, disbelief.
(Sabatini & Coletti 2010)

Romanian: ***hm*** *interjection* Used to express doubt, distrust, reserve, dissatisfaction, disbelief, irony.
(Academia Română 1998)

Latin: ***hem*** or ***em*** *interjection* An expression of surprise, in a good or bad sense; of admiration, joy, grief, indignation, etc. (like the intensive *ehem*, an expression of joyful surprise).
(Lewis & Short 1879)

Czech: ***hmm*** *interjection* Marks hesitation in speech.
(*Česky-anglický, anglický-česky slovník* no date)

Russian: ***гм*** (*gm* = [hm]) or ***хм*** (*xm* = [hm]) *interjection* (attested 19th cent.) Expresses doubt, disbelief, irony; used when the speaker hesitates or finds difficult to express himself.
(Evgen'eva no date)

Armenian: *հըմ* (*hem*) *interjection* Hem, hm, ahem. (Asmankoulian & Hovhannesyan 1984)

Sanskrit: हुम् (*hum*) or हूम् (*hūm*) *interjection* Exclamation of remembrance, doubt, interrogation, assent, anger, reproach, fear, etc. (Monier-Williams 1899)

Finnish: ***hm*** *interjection* Hum. (Deverrière & Charbey 1998)

Hungarian: ***hmm*** *interjection* Umph. (*Angol-Magyar Szótár* no date)

Turkish: ***hım*** (*hɯm*) *interjection* (attested 1876, *hımhım*) Nasal sound expressing doubt or dissatisfaction. (Nişanyan 2001)

Arabic: همهمة (*hamhama*) *interjection* An inarticulate utterance (*hmm, hmm*), e.g., to express astonishment, and the like; mumble, mutter(ing); hum; growl, snarl. (Wehr 1976)

Hebrew: **אהם** (*ehm*) *interjection* Um, h'm, ahem.

Chinese: 嗯 *interjection* 1. (*ēng*) A groaning sound expressing interrogation, surprise. 2. (*èng*) Non-verbal grunt expressing approval. 3. (*eng*) *interjection* Expressing approval, appreciation or agreement. (CEDICT no date)

The list of *hum*-like words presented here is limited to easily accessible dictionaries and certainly might be widened, and the definitions given refined and completed. Its goal is essentially to establish that humming plays an important role in human languages, independently from the present authors' own documentation effort (sections 4.2 and 4.3 and Table 4).

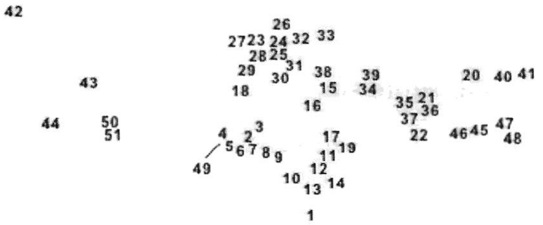
This list, encompassing languages (including ancient ones) from different families and phyla – Indo-European, Uralic, Turkic (Eurasiatic), Semitic (Afroasiatic) and Sino-Tibetan (Dené-Caucasian) –, provides a first confirmation that humming plays an important role in human communication. The variety of meanings seems as widespread as the interjection itself, and the variation in the data of Table 3 may be essentially limited by the degree of precision and accuracy of the source dictionaries.

But these written data remain of restricted scope, as they cover only a fraction of the existing language families, all spoken in Eurasia and enjoying a long literary tradition. What about languages from other families and continents, or without an easily accessible written documentation? Even though it does not seem very likely that humming would be restricted to written languages, it is a matter that is subject to facts, not inferences.

4.2. The universal interjection]m̃[in the world's languages

We have investigated]m̃[interjections with native speakers of languages belonging to the most varied phyla, families and groups (Table 4).

Table 4. Languages in which]m̃[interjections have been investigated and found



KHOISAN: ***Southern Africa***: *Central:* **1.** Naron. **NIGER-CONGO**: ***Mande***: *Northern*: **2.** Mandinka. **3.** Bambara. ***Atlantic***: *Northern*: **4.** Fula. **5.** Wolof. ***South-Central Niger-Congo***: *Volta-Comoe*: **6.** Abure. *Ewe-Fon*: **7.** Fon. *Yoruba*: **8.** Yoruba. *Nun-Bamileke*: **9.** Bamun. *Bantu*: **10.** Lingala. **11.** Luganda. **12.** Nyankore. **13.** Swahili. **NILO-SAHARAN**: ***Nilotic***: *Southern*: **14.** Kipsigis. **AFROASIATIC**: ***Semitic***: *Central*: **15.** Hebrew. **16.** Egyptian Arabic. *South*: **17.** Amharic. ***Berber***: *Northern*: **18.** Tamazight. ***Cushitic***: *Eastern*: **19.** Oromo. **DENÉ-CAUCASIAN**: ***Sino-Tibetan***: *Sinitic*: **20.** Mandarin. *Tibeto-Burmese*: **21.** Tibetan. **DRAVIDIAN**: ***South***: *Tamil-Kannada*: **22.** Tamil. **EURASIATIC**: ***Indo-European***: *Germanic*: **23.** English. **24.** German. **25.** Swiss German. **26.** Swedish. *Celtic*: **27.** Irish. *Italic*: **28.** French. **29.** Spanish. **30.** Sicilian. *Slavic*: **31.** Croatian. **32.** Polish. **33.** Russian. *Iranian*: **34.** Persian. *Indic*: **35.** Kashmiri. **36.** Nepali. **37.** Marathi. ***Altaic***: *Turkic*: **38.** Turkish. **39.** Uzbek. ***Nippo-Korean***: *Korean*: **40.** Korean. *Japonic*: **41.** Japanese. ***Eskimo-Aleut***: *Eskimo*: **42.** Alaskan Inupiaq. **AMERIND**: ***Almosan-Keresiouan***: *Iroquoian*: **43.** Cherokee. ***Central Amerind***: *Otomanguean*: **44.** Diidxa Zá (= Isthmus Zapotec). **AUSTRIC**: ***Austroasiatic***: *Viet-Muong*: **45.** Vietnamese. ***Tai-Kadai***: *Kam-Tai*: **46.** Thai. ***Austronesian***: *Malayo-Polynesian*: **47.** Tagalog. **48.** Bikol. **CREOLES**: *Portuguese-based*: **49.** Bissau-Guinean Kriol. *French-based*: **50.** Dominican Patois. *English-based*: **51.** Trinidadian Creole.

The languages in this sample represent a majority of linguistic phyla, and a variety of their subgroups. Only Indo-Pacific and Australian languages are not represented, due to the difficulty to find speakers of these languages outside their original area. The linguistic classification followed is that of Ruhlen (1991).

Like English, all these languages without exception use]m̃[interjections to express various feelings of the speaker. The exceptionless existence of]m̃[interjections in all languages of this sample constitutes a strong first indication of their universality in modern humans. Possible exceptions which might be discovered by a more thorough investigation will certainly be few (in terms of taxa, at least), and might sooner be explained by loss, than that the global distribution documented here might be explained by independent developments.

Another important point is that no single semantic use of]m̃[seems to be completely universal. For instance, while an overwhelming majority of languages in our sample, from Naron to Alaskan Inupiaq through Yoruba, Kipsigis, Tibetan and Tagalog, use]m̃m̃m̃[with a rising intonation for 'yum,' five languages, namely Bambara, Kashmiri, Diidxa Zá, Vietnamese and Thai, do not.

The cases of Bambara and Kashmiri are particularly interesting, as there are in our data closely related languages in which a]m̃m̃m̃['yum' interjection is commonly used – and it was known to our Kashmiri informant that other Indic languages do use it. This points to a cultural transmission of these interjections, with a non-negligible possibility of loss.

Approving and disapproving meanings of hums also seem not to be used by all languages, but the conditions of our inquiry do not allow to be entirely definite in this regard. Their absence from some languages may have been due to some informants being too focused on another meaning, and/or the concerned meanings being expressed by another length-pitch-loudness contour than the ones we suggested. Individual variations may also conceivably have played a role, which cannot be pinpointed here, as most languages have been represented by a single speaker in our study.

Nevertheless, both the absence of]m̃m̃m̃['yum' in a few languages, and the lack of evidence of the other meanings being completely universal already allow us to state that]m̃[interjections certainly include a culturally transmitted component, and are not entirely governed by instinctual mechanisms.

4.3. A universal complex interjection comprising a nasal sound]m̃[

We have investigated, in about half the languages listed in section 4.2 above, the complex interjection]h̃ʔ̃m̃h̃[expressing irony, doubt or contempt, best transcribed by the English word humph. This rather complex sound, with its rather specific meaning, was found in languages as diverse as Swahili, Bambara, Yoruba, Arabic, English, French, Russian, Kashmiri, Chinese, Tibetan, Vietnamese, Thai, Bikol, etc., while it was lacking in no language in which it was searched. As such, it may be considered a good candidate to universality, though somewhat less strongly based than plain *hum*.

5. Discussion

The aim of the present study was to document the universality of]m̃[interjections across languages and cultures. This important initial goal has been reached, on whose basis important conclusions may be drawn.

The universality of the use of a]m̃[sound in *hum-* and *humph*-like interjections in humans, with a variety of shared functions and meanings, definitely points to a common origin. As such, this common origin must be anterior to the dispersion of Homo sapiens on Earth, some 100,000 (±50,000) years ago.

However, several of their features that have been highlighted above tend to push them back to a stage anterior to articulate speech. These features are:

(i) Their lacking supraglottal articulation;

(ii) Their non-symbolic functions, and, correlatively,

(iii) Their being restricted to express feelings and states of mind of the emitter;

(iv) Their specific, continuous way of signifying;

(v) Their functional independence from articulate speech (even though they may interact with it);

(vi) The apparently spontaneous nature of their use to express well-being; and

(vii) Their parallels in other mammals, including chimpanzees.

All these features make these interjections closer to animal communication than to speech. However, both their wide range of semantic variation within the field of feelings, and above all the particular type of phonation they rely on distinguish them from animal vocalizations.

In this regard, it is particularly interesting to note that Oller (2000), summarizing thirty years of personal and others' observations of the early stages of acquisition of language by babies, describes the first stage of babies' vocalizations (starting at birth and during up to 2-3 months of age) as that of the acquisition of a speech-like phonation without any attempt at supraglottal articulation. Oller explains that mastering this type of phonation, unknown to non-human mammals, is the most basic prerequisite for speech, and certainly a much more demanding skill than is usually realized. In a final chapter, he even commits himself to a journey into "speculative prehistory", which starts by inviting us to

> imagine ape-like creatures, perhaps of the Australopithecus afarensis line (or [another, related] species). [...] One thing that makes them different from their [...] ancestors is that the members of this mutated line vocalize more [...]. Importantly, the call is produced quickly at a low intensity, within about 300 milliseconds, in a voice with smooth and periodic vibrations of the vocal cords, unlike the fixed signals of the repertoire. Furthermore, the call can be produced with or without a conspecific present, especially in infancy, but also in adulthood. (Oller 2000: 322)

After explaining what this new "quasi-vowel" sound might have been good for – attracting or maintaining attention, enhancing social contact, seeking favors or support –, Oller goes on:

> It may be important that the call be a relatively quiet one (as quasi-vowels are), so as not to attract unnecessary attention to the group from potential predators – loud enough to engage the conspecifics nearby, but not too loud. Survival is sometimes fostered by not calling attention to oneself [...]. Perhaps even more important is that the vocalization may be inhibitable and that it possesses the quality of Contextual Freedom to the extent that it can be suppressed in any circumstance in which silence is necessary. (Oller 2000: 323)

With their short, low-intensity, smooth, and inhibitable phonation, hums closely correspond to this hypothesized first stage of evolution of language. They may have evolved in archaic humans or pre-humans in a phase analogous to the first stage described by Oller in babies, and consistent with his prehistorical speculation. The evolution of this phase would comply with the two basic Neo-Darwinian evolutionary rules, namely it would have consisted in a differentiation of]m̃[sounds to express more and more diverse feelings (i) through very progressive steps and (ii) with clear benefits in survival and reproduction at each step.

The passage from a forest to a savannah habitat, implicitly alluded to by Oller with his mention of Australopithecines as the genus in which it would have evolved, may have been crucial in this respect. In this new environment, which offered few possibilities of fleeing from the numerous powerful predators that had lived until then on mammalian herbivores, the survival of our ancestors, poorly equipped to resist individually, certainly relied heavily on the cohesion of the band – a strategy independently discovered by different animal species that have been subjected to heavy predation pressure in similar contexts, like baboons, buffaloes or musk oxen.

The initial value of]m̃[sounds may have been to signify an absence of aggressiveness, just as with black bears and probably chimpanzees. It originally relied on both the absence of baring teeth, a clear threat used by most mammals, and the corresponding muffledness of nasal sounds due to the smaller passage of air and the nasal acoustic antiformants. These]m̃[sounds smoothed social relationships within the band and developed empathy between its members, while their muffledness also satisfied the requirement to avoid, as much as possible, high-amplitude sounds likely to draw attention. This initial value is still present in modern interjections, as it appears from *OED* definitions "expressing slight dissatisfaction, dissent," or "expression of [...] mild surprise or dissent."

The sounds evolved during this stage, apparently maintained until today in parallel with articulate speech (testifying to their unchallenged value of mildly expressing the speaker's feelings towards the hearer and his discourse and acts), would have paved the way for later developments.

Complex interjections may testify to a further stage of the phylogenetic evolution of vocal communication in humans. They may have appeared only when plain]m̃[sounds of the first stage, represented today by hums, were in full use, and probably already differentiated into various semantic functions through phonetic variations involving only phonatory control (i.e. through loudness, pitch, and length). It is not possible to say whether complex interjections appeared before articulate speech or developed in parallel with it. It is nevertheless striking that the other sounds they comprise (glottal stops and h-sounds) do not involve supraglottal articulators either.

In this regard, the subsequent stages described by Oller (2000) in the acquisition of speech capacity by babies may again help. To him, the second and third stages (from 1 to 4 and from 3 to 8 months, respectively) are those of the progressive mastering of supraglottal articulation, first for vowels, then for consonant margins, which demand strongly enhanced skills in the coordination of a number of very different muscles. As a consequence, during these two stages, it often happens that a phonetic transcription is inadequate to render babies' vocalizations. The sounds produced, even though our adult ears tend to "shoehorn" them into IPA phonemes, only distantly conform to any phoneme target, for a great part because of relative timing inadequacies in the babies' articulatory gestures.

Thus, in a scenario where hums would have been the first speech-like sounds acquired by humans, it would have been natural that the same articulator, namely the glottis, of which our ancestors had already gained rather fine control, were the first used to produce consonants. Most probably, rougher versions may have evolved before speech, paving the way to it, while the forms found today are influenced by our disproportionately enhanced articulatory skills.

While much remains to explain in the working of these interjections, we are sure that it is a job worth pursuing and which certainly will continue to shed a new light on the millenary problem of the origin of language and more generally on human communication.

References

AMEKA F. 1992. Interjections: the universal yet neglected part of speech. *J. Pragmatics* **18**-2/3, 101-118.

ACADEMIA ROMÂNĂ. 1998 [2nd ed.]. *Dicţionarul explicativ al limbii române*. Bucharest: Univers Enciclopedic. http://dexonline.ro/.

Angol-Magyar Szótár [Hungarian-English, English-Hungarian Dictionary] (no date, no place, no publisher). http://szotar.sztaki.hu/index.hu.jhtml.

ASMANKOULIAN & HOVHANNESYAN. 1984. *English-Armenian Dictionary*. Erevan: Hayastan.

CEDICT. No date. *Dictionnaire français-chinois-anglais*. http://www.hanzidico.com.

Česky-anglický, anglický-česky slovník [Czech-English, English-Czech Dictionary] (no date, no place, no publisher). http://slovnik.seznam.cz/cz-en/.

CONDILLAC E. BONNOT DE. 1746. *Essai sur l'origine des connoissances humaines*, Seconde Partie: *Du langage et de la méthode*. Amsterdam: Mortier. <http://books.google.com/>. Quoted from Eng. transl., *An Essay on the Origin of Human Knowledge*, London: Nourse, 1756; http://books.google.com/.

DEVERRIERE B. & J. CHARBEY. 1998. *Dictionnaire finnois-français et français-finnois*. http://www.freelang.com/dictionnaire/finnois.php.

EVGEN'EVA A. P. (А. П. ЕВГЕНЬЕВА) (ed.). 1999. *Словарь русского языка* (Slovar' russkogo jazyka, Dictionary of the Russian Language), 4 vols. Moscow: Institute of Linguistics of the Russian Academy of Sciences. http://feb-web.ru/feb/mas/mas-abc/0encyc.htm.

GOODALL J. 1986. *The Chimpanzees of Gombe. Patterns of Behavior* Cambridge, MA: Harvard Univ. Press.

GRIMM J. & W. GRIMM. 1838-1971. *Deutsches Wörterbuch*, 33 vols. Leipzig/Stuttgart: Hirzel. http://www.verstecken.uni-trier.de/cgi-bin/WBNetz/wbgui_py?sigle=DWB&mainmode=.

HIRST D. & A. DI CRISTO. 1998. *Intonation Systems: A Survey of Twenty Languages*. Cambridge, UK: Cambridge Univ. Press.

IMBS P. & B. QUEMADA (eds). 1971-1994. *Trésor de la langue française*. Paris: CNRS/Gallimard. http://www.cnrtl.fr/.

KILHAM B. & E. GRAY. 2002. *Among the Bears. Raising Orphan Cubs in the Wild*. New York: Holt.

LADD D. R. 2001. Intonational universals and intonational typology, in M. HASPELMATH, E. KÖNIG, W. ÖSTERREICHER & W. RAIBLE (eds), *Universals: An International Handbook*. The Hague: Mouton de Gruyter.

LADEFOGED P., & I. MADDIESON. 1996. *The Sounds of the World's Languages*. Malden, MA/Oxford, Eng.: Blackwell.

LEWIS C. T. & C. SHORT. 1879. *A Latin Dictionary*. Oxford, Eng.: Clarendon, http://www.perseus.tufts.edu/hopper/text?doc=Perseus%3atext%3a1999.04.0059.

LIEBERMAN P. 1967. *Intonation, Perception, and Language*. Cambridge, MA: MIT Press.

MONIER-WILLIAMS M. 1899. *A Sanskrit-English Dictionary*. Oxford, Eng.: Clarendon. http://www.sanskrit-lexicon.uni-koeln.de/monier/.

NIŞANYAN S., *Sözlerin Soyağacı. Çağdaş Türkçenin Etimolojik Sözlüğü* (Everest, Istanbul, 2001; http://www.nisanyansozluk.com/).

OLLER D. K. 2000. *The Emergence of the Speech Capacity*. Mahwah, NJ/London: Erlbaum.

Oxford English Dictionary. 1989 [2nd ed.]. London: Oxford Univ. Press. http://www.oed.com/.

RUHLEN M. 1991 [2nd ed.]. *A Guide to the World's Languages*, vol. 1: *Classification* Stanford, CA: Stanford Univ. Press.

SABATINI F. & V. COLETTI. 2010. *Dizionario della Lingua Italiana*. Milan RCS Libri. http://dizionari.corriere.it/dizionario_italiano/index.shtml.

SEYFARTH R. M., D. L. CHENEY, & P. MARLER. 1980. Vervet monkey alarm calls: Semantic communication in a free-ranging primate. *Anim. Behav*. **28**, 1070-1094.

SVENSKA AKADEMIEN. 1898-. *Ordbok över svenska språket utgiven av Svenska Akademien* Lund: Gleerup. http://g3.spraakdata.gu.se/saob/.

WEHR H. 1976. [3rd ed.] *A Dictionary of Modern Written Arabic*. Ithaca, NY: Spoken Language Services. http://www.archive.org/details/Dict_Wehr.pdf.

Acknowledgments:

Thanks to Alan Barnard (University of Edinburgh), David Jenkins (Roundhouse Institute for Field Studies), and Gabriela Pérez-Báez (Smithsonian Institution) for Naron, Inupiaq and Diidxa Zá data, respectively, to Sabine Bréchignac (Avicenne Hospital, Assistance publique-Hôpitaux de Paris) for Sicilian, Lingala and Tamil data, and to all informants who shared with us their linguistic knowledge.

MOTHER TONGUE
Journal of the Association for the Study of Language in Prehistory • **Issue XX • 2015**
In Memory of Harold Crane Fleming (1926-2015)

The Bashkir Gloss *tänäy* 'baby' and its Interphyletic Correspondences in Other Languages

Sh. Nafikov, G. Yagafarova, G. Karimova, M. Valieva
Russian Academy of sciences, Ufa Science Centre[3]

Abstract: The article contains some cross-linguistic and largely interphyletic *comparanda* concerning some putative cognates or parallels to the Bashkir and other Turkic words denoting 'baby, infant'. A superficial search for so-called look-alikes taken from various languages of the Amerindian and Austric macrophyla and a study of sources have revealed many parallels which could be accounted for by chance similarities (which we think highly unlikely), by areal diffusion phenomena, or by a primordial unity dating back to ethnolinguistic prehistory.

Case history. In lexicographical and other sources it is known that the Bashkir language has the gloss *tänäy* 'baby' which is polysemantic. The first meaning is 'baby, infant', a derivative being *tänäylä* – 'to give birth' (of a woman). The second meaning is known as a kinship term, especially in the Eastern archaic dialect where they have *tänäy* 'younger brother / sister', 'younger brother-in-law'. Field and dialect material demonstrates that the word *tänäy* is current also in the transitional North-west dialect of the Bashkir language in the form of *tänäkäy* 'junior sister' (*Dialectological Dictionary of the Bashkir language*, 2002).

It should be noted that the frequency of the word *tänäy* with derivatives is less than that of usual literary equivalents of the Bashkir words *bala* 'child', *bäpes* 'baby', *sabyj* 'baby', etc. In the absence of an etymological dictionary of the Bashkir language the origin of *tänäy* and its possible derivatives remain unknown.

Possible cognate words in the Turkic languages are Yakut *djon* 'people', Bashkir dialectal (east) *toŋɤos* 'firstborn', Tatar dialectal *tonchok* 'firstborn' from *tun* < 'first'; Chaghatay *tunɤuch* 'firstborn', Kumyk *tunguch* 'firstborn' (D.B. Ramazanova, *Terms of kinship in the Tatar language,* 74); Turkish *tana tulon* 'children', etc.

The Bashkir language also employs *tänäy* 'word for addressing persons younger than oneself'; *tänä* (Eastern dialect) 'baby'; 'word of appeal to younger sisters and brothers'.

Some clarity may be brought through comparisons in other languages: cf.: Indo-European *dhenu* 'suckling' (R. Akhmetyanov, 2006), Chuvash *tan* 'equable' > Mari dialectal *tan* 'friend, pal'; *tin* 'equable' (M.R. Fedotov, *Chuvash-Mari language relationship*, 241-242), Burushaski *tana* 'bastard', etc.

---

[3] **About the Authors:** *Shamil Nafikov,* senior research fellow at the Department of Linguistics, Institute for History, Language and Literature, Ufa Scientific Center, the Russian Academy of Sciences; *Gulnaz Yagafarova,* senior researcher at the Department of Linguistics, Institute of History, Language and Literature, Ufa Scientific Center, Russian Academy of Sciences; *Gulnaz Karimova,* researcher at the Department of Linguistics, Institute of History, Language and Literature, Ufa Scientific Center, Russian Academy of Sciences; *Madina Valieva,* a junior researcher at the Department of Linguistics, Institute of History, Language and Literature, Ufa Scientific Center, Russian Academy of Sciences.
e-mail: nafiqoff@mail.ru, rishrinat@mail.ru

In ancient Turkic such a word is not recorded, but *tana* means 'seeds and fruit of some plants' (*Old Turkic Dictionary*, 544).

The authors propose to juxtapose the Bashkir words *tänä* 'baby' and *tana* 'heifer'. The basis for the joint consideration of these words is the sememe 'young human / animal species' as well as almost complete coincidence of the words in their appearance, *i.e.* morphonological similarity of our comparison.

The proposed **objective** of this article is to find and show to readers possible matches, correspondences outside the Turkic, (*resp.*) Altaic languages, comparing very remote indigenous languages of the Americas, Southeast Asia and the islands of Oceania.

A brief overview of the actual comparative material

Employing the method of mass comparison of the material available, the authors have sampled the following *comparanda* concerning Bashkir *tänäy*, *tänä* and similar words:

I. The Athabaskan (Athapaskan) family of indigenous languages (North and north-west of mainland North America).

The main word for 'man, person, the men' in these languages is the gloss *dene* and *tene* (John Campbell, "The Denes of America Identified with the Tungus", 167-223) and Ket *d'ɛ'ŋ* 'people' (*collectiva*), cf. pre-Athabaskan **dəne* 'person'. In the inner and outward form (the phonetic shape) similarity to the Bashkir *tänäy* is unlikely to cause doubt in the readers mind while looking through this sketchy article. Other opinions on *dene*'s etymology are familiar to the authors yet are not touched upon here.

II. Amerind macrophylum *senso lato*

Modern comparative linguistics suggests that the root (base) of the *TVNV* type is found in many aboriginal languages in the area of North, Central and South America. Below is a brief sampling of various literary sources and lexical files of the authors:

Among Aravan languages in South America (synonym of the Mado language) they have recorded the language of the tribe *deni* (Burlak and Starostin, 359). Our supposition is that in this case we deal with a tribal name equivalent to the ethnonym *dene*, as discussed above *sub I*.

The Mixtec language (Mexico) has the word *ta'nu i'sa* 'junior sister', and in the indigenous Sukhina language *tino-ice* 'young woman', where the last elements are reflexes of proto-Amerind diminutive affix *-mai* 'younger sister'. The Amaguae language also has a cognate – kin term - *tsen-ke* 'son', in the Nekigran language - *thon-ghi* 'sister'. The last-mentioned languages are spoken by tribes in South America.

However, specimens from the different subdivisions of the Amerind macrophylum in North America confirm the presence of kindred-root words, mainly in the meaning of the terms of (blood) kinship. Thus, the Totonac language (a Penutian tongue spoken in Mexico) has the gloss *t'ana-t* 'grandson, in the Sierra Miwok language (in the Far West of the U.S.A.). In the meaning of 'daughter' they use the word *tune-* (J.H. Greenberg, M. Ruhlen, *Amerind etymological dictionary*, 97).

On the West Coast of the United States similar words are recorded in languages of different families of the Amerind macrophylum, e.g., *tana* 'child' in Nootka (Penutian family), *tini-si* 'child, a son, a daughter' in the (now extinct) Yana (a Hokan language).

An important point in favour of the fact that the selfsame root is able to denote gender differences depending on the internal vowel is found in the source below. In the article cited above, the noted Americanists J. Greenberg and M. Ruhlen provide examples of the effect of the so-called internal inflection, when the predominantly narrow vowel is used in the root of a word to refer to the male gender, the [u] type of vowel conveys the meaning of feminine: proto-Amerind T'U'NA 'daughter, sister, girl'. Below we adduce examples from the languages of the Americas:

Coeur d'Alène	*tune*	'niece'
Yuchi	*c'one*	'daughter, son'
Central Sierra Miwok	*-tū́ne*	'daughter'
Tehuelche	*thaun*	'sister'
Tacana	*-tóna*	'younger sister'

It should be noted that the modern form of the words that are the subject of this article may be quite different from the shape of their morphonological (diachronic) reconstructions. Examples are the lexemes taken from the preliminary version of the *Amerind Etymological Dictionary* (Greenberg & Ruhlen 2007: 173, 174]: Wiyot (Algonquian family), *čī-k* 'child' (? < **tin-ki*); Proto-Central Otomi **šũ-ci* 'girl' (< **t'un-ki*); Tewa *sũn-tsi* 'friend' (< **tun-ki*). The last two languages are included in the area of the Indian languages of Central America; note also Goajira *tan-či* 'brother-in-law' (Equatorial family in South America). The common root in the meaning of a kin term is represented in a number of languages of the Macro Je stock (Brazil), where one meets Aponegicran *i-thon-ghi* 'sister', Caraho *a-ton-ka* 'younger sister', Piokobyé *a-tõn-kä* 'younger sister'.

As in most lexical groups of the basic lexical core, in kin terms in the etymology of words for 'son / child / daughter' researchers deal with the phenomena of simplification and restructuring in the morphophonemic shape occurring diachronically in presumed cognates inherited from prehistoric epochs.

The main argument of extralinguistic nature is the theory of Asiatic origin of American Indians. At the level of the latest genetic research this subject is covered in dozens of works, but in the framework of this article we shall restrict references, mentioning only one source by way of works of Russian and American geneticists (Derenko and Malarchuk, "In search of the ancestral home of the American Indian", 72-78). In terms of the linguistic aspect of the peoples communication / languages of the Old and New World the issue is raised in the works of scores of scientists. However, the present authors prefer to be limited to two references *viz.* (Yakovlev, "Ancient linguistic links between the Caucasus, Asia and the Americas", 196-204), (Polat Kaya, "Search For a Probable Linguistic and Cultural Kinship Between the Turkish People of Asia and the Native Peoples of Americas", 650-679).

The following lengthy quotation taken from a paper by J. Greenberg and M. Ruhlen (1992) provides rich factual data on the root in question that seems to have evolved from a single ancestral root in common with the Bashkir gloss *tänä / tänäy*. For the latter see more on the first page of our article.

> **Defining a Family by a Single Linguistic Innovation: T'ANA.**
>
> Evidence in its daughter languages implies that Proto-Amerind had a root that sounded like T'ANA, meant "child" and assumed three vocalizations that indicated gender. Because the etymology runs through all of Amerind's 11 branches but *is not found in any other group* [emphasis added – *authors*], it ties the family together and distinguishes it from others. Branches appear in the first column. Almosan-

> Keresiouan and Chibchan-Paezan are divided, and each thus occupies two rows. All daughter languages are modern save Proto-Uto-Aztecan, which is reconstructed.

LANGUAGE FAMILY	LANGUAGE	FORM	MEANING
AMERIND	PROTO-AMERIND	TA'NA	"CHILD, SIBLING"
Almosan	Nootka	*t'an'a*	"child"
Keresiouan	Yuchi	*tane*	"brother"
Penutian	Totonac	*t'ána-t*	"grandchild"
Hokan	Coahuilteco	*t'an-pam*	"child"
Central Amerind	Proto-Uto-Aztecan	**tana*	"daughter, son"
Chibchan	Miskito	*tuk-tan*	"child, boy"
Paezan	Warrau	*dani-*	"mother's sister"
Andean	Aymara	*tayna*	"firstborn child"
Macro-Tucanoan	Masaca	*tani-mai*	"younger sister"
Equatorial	Urubu-Kaapor	*ta'ïn*	"child"
Macro-Carib	Pavishana	*tane*	"my son"
Macro-Panoan	Lengua	*tawin*	"grandchild"
Macro-Ge	Tibagi	*tog-tan*	"girl"

> Some of these roots are distributed so broadly that it is difficult to understand how they were overlooked for so long. The main reason, no doubt, is that specialists in American languages have each tended to focus on one language family. Thus, even if there were similar words running through family after family, nobody would notice them.
>
> A good example is furnished by an Amerind root whose sounds were roughly TANA, TINA or TUNA and whose meaning fell somewhere in the range of "child, son, daughter" (the capital letters signify that the sounds are approximations). No one who carefully compares the vocabulary of Amerind languages from North and South America can fail to be impressed by the very high frequency of such terms.
>
> How should we explain this broad distribution? One possibility might be that such terms appear around the world, as do words resembling "mama" and "papa." Unfortunately for this hypothesis forms such as TANA and TUNA, with the meaning "son" or "daughter," are as rare outside Amerind as they are abundant within it. This root not only ties Amerind together but also distinguishes Amerind from other language families. It is, as linguists say, an exclusive innovation of the Amerind family.
>
> Recent research by Ruhlen appears to explain why the first vowel of the root varies and why the root finds widespread use in words denoting both the sexes (son/brother and daughter/sister) and the neutral form (child/sibling). The reason is that Proto-Amerind, the original language from which all modern Amerind languages derive, had three forms, or grades, of the root in question in which the first vowel was correlated with sex as follows: TANA "child, sibling," T'INA "son, brother, boy" and TUNA "daughter, sister, girl."
>
> As might be expected, in the 12,000 or more years since Amerind began to divide into subfamilies, the correlation between the initial vowel and the original gender has often been lost. As a result, many forms that are clearly cognates of the others now show the "wrong" vowel. One example of this kind is Proto-Algonquian **tāna* "daughter," where the first vowel is **ā* rather than **ū* (J.H. Greenberg, M. Ruhlen, "Linguistic Origins of Native Americans", 96), see also (Merritt Ruhlen, "Amerind T'ANA 'child, sibling'", 1994, 183-206; Merritt Ruhlen, 1991).

The above masculine and feminine kinship terms current in various branches of Amerind by and large coincide with the Turkic counterparts like Yakut *dyon* 'people' or various Bashkir glosses adduced *quod vide supra.*

Austric Macrofamily

The incidence of the root in the Malayo-Polynesian languages

Cross-linguistic comparative investigation conducted by the present writers has revealed striking occurrences of glosses similar to Bashkir *tänäy* 'baby, etc.' and comparable to Amerind Salina (a Hokan idiom) *a-ton-o* 'his younger sister' in quite a number of aboriginal languages belonging to the Austric super phylum, more particularly to some Austronesian languages (of the Malayo-Polynesian branch). The following are words meaning 'man' from 23 idioms of the so-called further Oceania linguistic area:

> **man:** Rapanui: *taŋata*; Tahiti: *taane*; Maori: *taane*; Hawaiian: *kaane*; Mangareva: *tama=roa*; Marquesas: *énata*; Samoan: *taane*; Rennell: *taaŋata*; Ontong Java: *kaŋata*; Sikaiana: *tanata*; Tikopia: *taŋata*; Anutan: *taŋata*; Niue: *taane*; Tongan: *taŋata*; Tuvalu: *taŋata*; Nanumea: *taŋata*; Makatea: *taŋata*; W.Futuna: *tane*; Mele-Fila: *taane*; Kapingamarangi: *taane*; Nukuoro: *daane*; W.Fijian: *tamata-ðola*; Bau (EF): *taŋane.*

These words are quoted from (M. Gell-Mann, I. Peiros, G. Starostin. Lexicostatistics and Shared Innovations… 2009, 34).

The root is also found in the **Austroasiatic** branch of Austric:

> **child**: (AA = Austroasiatic; MY = Mao-Yao)
> AA: Munda: Sora *tɔnan* 'sister', Gutob *tonan* id., Parengi (Gorum) *tonan* 'younger sister', Bonda *tuna* id., etc.
> MY: PMY **tɔn* 'son' ('offspring, both human and animal')
> Ainu (Hokkaido) *teinep, tennep* 'a very young child' (Batchelor)…
> (John Bengtson, Vaclav Blažek, "Lexical Parallels Between Ainu and Austric", 2000, 243; Bengtson in *Mother Tongue*, 221).

Our readers are no doubt aware of great geographical distances separating, say, the Easter Island with its Rapanui idiom and islands of West Fiji or New Zealand's Maori for that matter. Despite this fact it is plain to see that the morphonological shape of the words for 'man' appears to be fairly uniform. Compare Maori *taane* with Mele-Fila *taane* or Tikopia *taŋata* with Samoan *taane*. Lexical homogeneity of many Austric superstock languages has been taken notice of by many a linguist in the past starting with Spaniard Hérvas di Panduro (late XVIIIth-century) to, say, S. Ray (early XXth century). Much theoretical and factual data can be found in such sources as [Terry, Klar 2005], [Trombetti 1925], etc.

The theoretical basis for explaining the similarities between the Amerindian languages and members of the Austric phylum can be found in works of many ethnolinguists. Among them it is worth noting P. Rivet (France, 1926), macrocomparativistic studies by M. Swadesh (U.S.A.) and so forth. The latest hypothesis on the existence of the so-called Boreal or Borean superstock (H. Fleming, U.S.A.; S. Starostin, Russia, and others) provides a state-of-the art theoretical foundation for the phenomena of linguistic similarities between *Nostratic* (including Turkic), *Amerindian* and *Austric* phyla proceeding from the level of accumulated knowledge at the turn of XXth and XXIst centuries. See the Wikipedia website on Borean at https://en.wikipedia.org/wiki/Borean_languages

An attempt to interpret various glosses for analysis of some data on cross-language convergences

The Semantic Aspect. The body of *comparanda* discussed in this article, dealing with glosses involving 'child', 'person', and a number of kinship terms, allows us to conclude that such lexemes are constituent elements of the semantic field "Names of human beings, male or female." Given the root-related Bashkir *tana* 'heifer' the dominant theme of this semantic field should be 'young' (human or animal). Taking into account the data of human physiology (parturition), the *original* meaning was probably 'baby, infant', as is the case in Bashkir. Considering the data of cultural anthropology and ethnography (community-tribal system at the dawn of human society), the use of the word's root as a term of kinship was a further stage in the chain of semantic evolution. The sense *homo*, *homini* must have evolved later on.

The stem of the words may be associated with the word meaning 'belly'. This is indicated by a number of examples from the Polynesian languages: Nanumea *tinae*, Western Futuna *činae*, Kapingamarangi *tinae*, Nukuoro *dinae* [Gell Man, Peiros ... 2008, p. 26]. The close semantics of the glosses 'belly' and 'baby' (that is, the fruit of the womb) is obvious.

The Morphonological Aspect. Numerous data from archaic Native American languages provide science graphic evidence of the phonetic method of forming (shades) of meaning (i.e. phonosemantics) once being among the leading linguistic tools, as detailed *vide supra*. The way of *affixation,* i.e. morphological derivation, played a leading role in the next stages of language development. On the material of languages of Eurasia exemplified by the Bashkir *tänäy* 'baby', etc., we observe, in particular, the development of the once common √TVN, where we plainly have the phenomenon of affixation (diminutive in *–y*) and phonosemantics – palatalization of the root vowel.

Thus, the development of the root *tänäy* can be represented in the direction of *tun* < *tana* / *tänä* < *tänäy*.

A possible explanation of the nature of coincidences.

On the basis of the canons of general linguistics, the similarities established or parallels may be a manifestation of *chance* (random look-alikes). A counter-argument is that these glosses are part of the basic (core) lexical fund, as such are included in the diagnostic Swadesh list (in the sense of *homo*). Areal *diffusion* factor also cannot be ruled out. The counter-argument is geographical, for example, whether it is possible to imagine diffusion of words from the banks of the Volga in the west to Easter Island in the Far East?

The novelty and relevance of the investigation's results.

Kinship terms, names for a human in terms of similarities between various languages have been the particular subject of study of comparativists (V. Blažek on European languages, N. Solntsev, *et al.* on Austronesian languages, M. Takashi, M. Kindeyl on Amerindian, etc.). From the standpoint of *interphyletic* linguistic *comparanda* within the Borean superstock readers are holding the first sketch of this sort of studies. The relevance of the sketchy study done by the authors remains for our colleagues to pronounce their verdict on, though.

Brief Conclusions

a) Bashkir glosses *tänäy* and the like have matches in the Turkic languages; *resp.* in the Eurasiatic tongues *per se*.

b) Matches in both internal and external form seen in the etymologically related (?) but unrelated lexemes (in the classical sense) have been revealed in the *Amerind*, *Austro-Asiatic* and *Oceanic* languages.

c) The nature of the matches is the object of a philological dispute. Is it a consequence of chance, areal (contact) diffusion or genetic relationship?

d) The authors are inclined to think that the most likely explanation for the identified similarities can be a common source as a result of genetic relationships within members of the Boreal superstock with a very large time depth (compare this with the putative age of the Nostratic languages ≈ 10-12 thousand years).

Abbreviations: dial. - dialectal, east. - Eastern, Mari dial. - Mari dialect, Mias. - Miass subdialect of the Eastern dialect of the Bashkir language, Tat. – Tatar, Turk. - Turkish, west. – Western, Yak. – Yakut.

References[4]

Ahmetyanov, Rifkat G. *Etimologicheskiy slovar tatarskogo yazyika. (Etymological dictionary of the Tatar language.)* III tom. – Birsk: Birsk. gos. sots.-ped. akademiya, 2006. 233 s.

Burlak, Svetlana A., Starostin, Sergei A. *Vvedenie v lingvisticheskuyu komparativistiku. (An introduction to linguistic comparative studies.)* – Moscow, 2001. 272 s.

Grinberg, Y.H., Rulen, M. Lingvisticheskie korni amerikanskih indeytsev. (Linguistic Origins of Native Americans.) *V mire nauki.* 1994. No 1. S. 56 sled. [Translation of Greenberg & Ruhlen 1992.]

Derenko, Margarita Ya., Malyarchuk, Boris A. V poiskah prarodinyi amerikanskih indeytsev (In search of the motherland of American Indians). *Priroda.* 2001. No 1. S. 72-78.

Dialektologicheskiy slovar bashkirskogo yazyika. (A dialectological dictionary of the Bashkir language.) – Ufa, 2002. – 432 s.

Drevnetyurkskiy slovar'. (Ancient Turkic dictionary.) / Red. Nadelyaev V. M. i dr. – L.: Nauka, 1969. 676 s.

Kuzmenkov, Yevgeniy A. Variant rekonstruktsii drevnemongolskogo kornya so znacheniem 'chelovek'. (A reconstructed variant of the Old Mongol root meaning 'a person'.) *Mongol'skiy lingvisticheskiy sbornik.* – M., 1992. S. 43-54.

Ramazanova, Dariya B. *Terminyi rodstva i svoystva v tatarskom yazyike. (Kinship terminology in the Tatar language.)* – Kazan, 1991.

Solntsev, Vladimir M., Solntseva, Natalya V. Oboznacheniya ponyatiya 'chelovek' v mongolskih yazyikah i ryade yazyikov yugo-vostochnoy Azii. (Designation of the notion 'person' in the Mongol languages and in some languages of Southeast Asia.) In *VI Mezhdunarodnyiy kongress mongolovedov* (Ulan-Bator, avgust 1992). Doklady rossiyskoy delegatsii. II. – M., 1992. S. 156-168.

Fedotov, Michail R. *Chuvashsko-mariyskie yazyikovyie vzaimosvyazi. (Chuvash-Mari linguistic interrelations.)* – Saransk, 1990. 336 s.

Yakovlev, Nikolay F. Drevnie svyazi yazyikov Kavkaza, Azii i Ameriki. (Ancient linguistic links between the Caucasus, Asia and the Americas.) In *Trudy Instituta etnografii, novaya seriya.* T. II. M.-L., 1947. S. 196-204.

---

[4] This list follows the Russian tradition of works in Russian listed first, followed by a list of works in other languages [Ed.].

Bengtson, John D., Blažek, Vaclav. 2000. Lexical Parallels Between Ainu and Austric, and Their Implications. *Archiv orientální*, Praha, Orientální ústav AV ČR. vol. 68, no. 1, pp. 237-258.

Blažek, Václav. 1990. K typologii označení "člověka" v indoevrpoských jazycích (v nostratickém kontextu). *Slavia*, Praha, Československá akademie věd. vol. 59, no. 1, pp. 262-270.

Campbell, John. 1898. The Denes of America Identified with the Tungus of Asia. *Transactions of the Canadian Institute* 5: 167-223.

Gell-Mann, Murray, Peiros, Ilya, Starostin, Georgiy. 2008. Lexicostatistics Compared with Shared Innovations: The Polynesian Case // *Orientalia et Classica. Trudy Instituta vostochnyh kul'tur i antichnosti*. Vypusk XIX. Moscow. pp. 13-40.

Greenberg, Joseph H., Ruhlen, Merritt. 1992. Linguistic Origins of Native Americans. *Scientific American*, November: 60-65.

Greenberg, Joseph H., Ruhlen, Merritt. 2007. *Amerind etymological dictionary*. Stanford, 1992.

Jones, Terry L., and Klar, A. Kathryn. 2005. Diffusionism Reconsidered: Linguistic and Archeological Evidence for Prehistoric Polynesian Contact with Southern California. *American Antiquity,* 70: 457-484.

Kaya, Polat. 1987. *Search For a Probable Linguistic and Cultural Kinship Between the Turkish People of Asia and the Native Peoples of Americas.* In: *Atatürk Kültür, Dil ve Tarih Yüksek Kurumu. Türk Tarih Kurumu.* Pp. 650-679.

Kinkade, Dale M. 1993. Salishan Words For Person, Human, Indian, Man. In *American Indian Linguistics and Ethnography in Honor of Laurence C. Thompson,* ed. By Anthony Mattina and Timothy Montler, Missoula, MT, University of Montana, Linguistics Laboratory, 163-183.

Ruhlen, Merritt. 1991. Amerind T'ANA 'child, sibling'. *Mother Tongue newsletter,* Issue 14 (August 1991). 12.

Ruhlen, Merritt. 1994. Amerind T'ANA 'child, sibling'. In *On the origin of language.* Studies in linguistic taxonomy. Stanford: Stanford University Press. pp. 183-206.

Takahashi, Moritaka. 1965. The Man and People in Euro-Asian Languages. *Orbis* 14: 505-508.

Trombetti, Alfredo. 1925. *Lingue oceaniche in America?* Bologna.

ASLIP News and Notes

ASLIP Annual Meeting | November 7, 2015

At the Department of South Asian Studies, 1 Bow Street, 3rd fl., Cambridge, MA 02138, USA

In attendance:

Michael Witzel (President)
John D. Bengtson (Vice-President)
Michael T. Lewis (Secretary-Treasurer)
Nicholas Davidson (Administrative Editor)
B.K. Rana (Kusunda Project)
Jonathan Morris (Information Officer) [from São Paulo via Skype]

The meeting was convened at 12:30 pm by President Witzel.

Attendees stood in silence one minute in memory of **Harold C. ("Hal") Fleming**, ASLIP Founder and past President.

Treasurer's report: ca. $500 left in account (after MT printing). Letters soliciting dues from members are in the works. There was a discussion of raising dues to $45 per year. Disadvantage: members may drop out. N D proposed applying for a grant to alleviate fiscal shortage, postpone raising dues.

Gorgias Press printing Mother Tongue: N D and J D B will continue negotiations with the Press. J M has a British alternative for this purpose, if needed.

"Mother Tongue Press" or "ASLIP Press": N D proposed that Gorgias can do the printing. J M proposed that a reviewing committee be formed for peer review for M T Journal and M T Press.

Council of Fellows: Attendees nominated David Reich (Harvard), Chris Stringer, and Anna Laura Trombetti. J D B reminded that Council Fellows are elected by ASLIP membership at large. See below, on the subscription and membership page (p. 273), for voting and nominating procedures.

Web development aslip.org: N D proposed that a specific amount be requested from Aequa Foundation, for (a) covering the shortfall in ASLIP treasury (for printing, mailing, etc.), and (b) for web development. We need to get a specific amount required by web developer, Brita M. Bengtson. J M advised that more content should be available on aslip.org, to tell browsers what ASLIP is about, and offered to write some text for this.

Conferences: Two main ideas were discussed: a *Nostratic Conference*, and a *General Conference on Prehistory*. M W mentioned that local talent, like David Reich, should be included. Other foundations (NSF, Aequa, Radcliffe, Boston, Asia) may also be able to sponsor it. J M (?) suggested that a synthesis view of prehistory be formed in advance for the Prehistory Conference.

Other venues to spread our message: J M: Polyglot Conference is held twice a year, in NY and Berlin. A presentation there could generate publicity for ASLIP and sorely needed interest of younger people. http://polyglotconference.org/ M W suggested Ted Talks: https://www.ted.com/talks The selection process for Ted Talks is stringent.

The meeting was adjourned by President Witzel, and discussions continued, as usual, in a nearby Chinese restaurant.

* * *

Suggested Reading (Jonathan Morris)

1. "Early humans: tools, language, and culture." Chapter 14 in the *Cambridge World History*, vol. 1, David Christian (ed.), *Introducing World History (to 10,000 BCE)*, pp. 339-361. Cambridge: Cambridge University Press, 2015. This chapter deals with the period 70,000-48,000 BCE and has things to say about the emergence of fully modern syntactical language and how it would have advantaged us above all our very near *Homo* kin, and what kinship and religion among our common human ancestors of that period may have been like. It is history that does not bring up the proposals of Michael Witzel's recent myth book, but it lays out a historical backdrop into which the deep history of myth fits very well indeed.
2. "Africa from 48,000 to 9500 BCE." Chapter 15 in *The Cambridge World History*, vol. 1, David Christian (ed.), *Introducing World History (to 10,000 BCE)*, pp. 339-361. Cambridge: Cambridge University Press, 2015.
3. "Agricultural origins: what linguistic evidence reveals." Chapter 3 in *The Cambridge World History*, vol. 2, Graeme Barker and Candice Goucher (eds.), *A World with Agriculture*, pp. 55-92. Cambridge: Cambridge University Press, 2015. This chapter looks at Oceania as well as Africa, and a little at the Americas, and it comes to strongly asserted conclusions about Semitic and Indo-European histories.

For Subscription and Membership Information Contact:

Acting Secretary-Treasurer: John D. Bengtson
palaeojdb@hotmail.com
Savage, MN U.S.A. Tel. 612-839-3649

ASLIP **membership: $35.00 USD,** yearly
Lifetime membership: $500.00 USD
For electronic payment see ***PayPal*** link at http://aslip.org/

Please contact the Secretary-Treasurer for voting on the ASLIP Council of Fellows; or nominating therefor. At the 2015 annual meeting the following candidates were nominated:

David Reich
Department of Genetics, Harvard University Medical School; Broad Institute of Harvard; Massachusetts Institute of Technology; Boston Evolutionary Genomics Supergroup

Chris Stringer
Natural History Museum, London

Anna Laura Trombetti
Università di Bologna, Dipartimento di Storia Culture Civiltà, Bologna Italy[1]

The ASLIP Council of Fellows is *purely honorary*. The fellows have no required duties, though of course we encourage them to participate in ASLIP in any way. Any member of ASLIP may nominate worthy scholars who have made significant contributions to the Four Fields of anthropology, including genetic linguistics, or otherwise to the study of human prehistory. Only the membership at large can elect a Fellow. You may vote for any or all of the candidates nominated.

For other information about ASLIP, or to inform ASLIP of important news, new scientific developments, and media relations, please contact:

Information Officer: Jonathan Sherman Morris
São Paulo, Brazil
jonathanmorris1964@gmail.com Tel: 5511-31512667

For submission of articles, notes, book reviews, or letters to MOTHER TONGUE, please contact:

Editor: John D. Bengtson palaeojdb@hotmail.com
Savage, MN U.S.A. Tel. 612-839-3649

For any other correspondence with ASLIP officers and advisors, see the contact information on the **inside front cover** of this volume.

ISSN 1087-0326 **ASLIP** Homepage: http://aslip.org

---

[1] Laura is a great-granddaughter of Alfredo Trombetti. See www.unibo.it/sitoweb/annalaura.trombetti/en